I 29.79/3: G 76 t/3

Clemson University
3 1604 019 774 555

development concept plan

PUBLIC DOCUMENTS
DEPOSITORY ITEM

AUG 31 1989

CLEMSON
LIBRARY

COLTER BAY VILLAGE / JACKSON LAKE LODGE

GRAND TETON

NATIONAL PARK • WYOMING

RECOMMENDED:

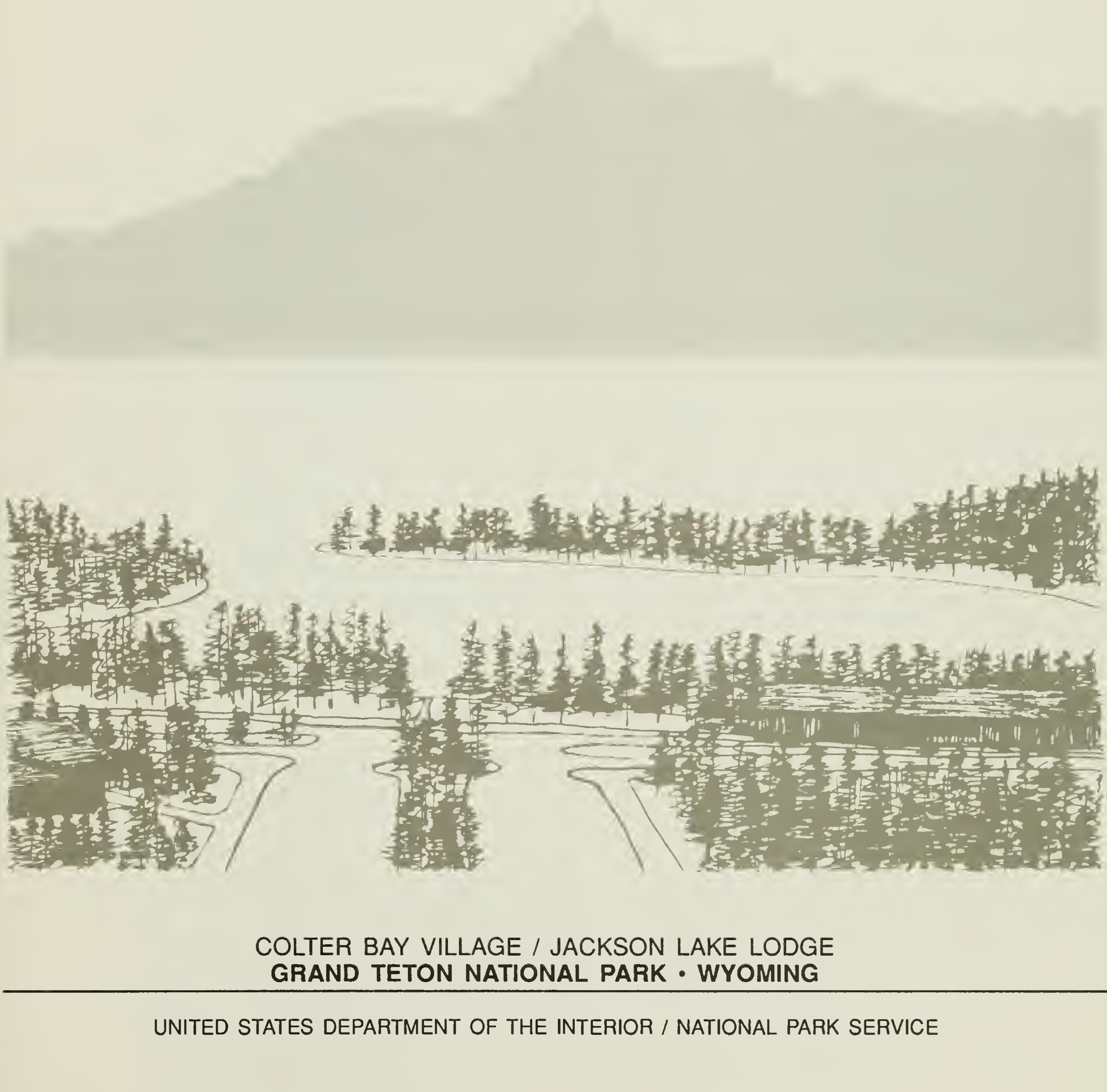
John W. Bright Assistant Manager, Denver Service Center	April 4, 1989
Jim Brady Acting Superintendent, Grand Teton National Park	June 26, 1989

APPROVED:

Jack Neckels Acting Regional Director, Rocky Mountain Region	July 10, 1989

development concept plan

july 1989



COLTER BAY VILLAGE / JACKSON LAKE LODGE

GRAND TETON NATIONAL PARK • WYOMING

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

Digitized by the Internet Archive
in 2012 with funding from
LYRASIS Members and Sloan Foundation

http://archive.org/details/developgrandteton00nati

CONTENTS

INTRODUCTION 1
  - PURPOSE/NEED 1
  - PROBLEMS AND ISSUES 1
    - Winter Use 8
    - Circulation/Roads/Parking 8
    - Lodging 8
    - Food Service 8
    - Marina/Boat Trailer Storage 8
    - Service Stations 11
    - Horse Corrals 11
    - Concession Merchandising/Storage/Maintenance Space 11
    - Campgrounds 11
    - Ranger Office/Fire Station 11
    - NPS Employee Housing 12
    - Concession Employee Housing 12
    - Maintenance 12
    - Utilities 12
  - MANAGEMENT OBJECTIVES 13

DESCRIPTION OF THE AREA 17
  - NATURAL RESOURCES 17
    - Geographic Setting 17
    - Water Resources 17
    - Air Quality 18
    - Soils 18
    - Vegetation 19
    - Wildlife 19
    - Threatened and Endangered Species 20
  - CULTURAL RESOURCES 21
    - Archeological Resources 21
    - Historic Resources 21
  - VISITOR USE 21
  - EXISTING DEVELOPMENT 23
    - Colter Bay Village 23
    - Jackson Lake Lodge 24
  - UTILITIES 25
    - Water System 25
    - Wastewater System 26

DEVELOPMENT CONCEPT PLAN 28
  - CONCEPT 28
  - VISITOR EXPERIENCE/ACTIVITIES 28
  - CIRCULATION AND PARKING 28
  - LODGING 34
  - FOOD SERVICE 34
  - MARINA/BOAT TRAILER STORAGE 34
  - SERVICE STATIONS 35
  - HORSE CORRALS 35
  - CONCESSION MERCHANDISING/STORAGE/MAINTENANCE SPACE 37
  - CAMPGROUNDS 37
  - RANGER OFFICE/FIRE STATION 37

  - HOUSING AREAS 38
  - MAINTENANCE AREA 39
  - UTILITIES 39
    - Basic Needs 39
    - Additional Utilities 40
  - IMPLEMENTATION COSTS AND PRIORITIES 41

CONSULTATION 43

APPENDIX A: COLTER BAY VILLAGE DESIGN GUIDELINES 44

APPENDIX B: DEVELOPMENT COST ESTIMATE DETAILS 48

APPENDIX C: ALTERNATIVES CONSIDERED IN THE ENVIRONMENTAL ASSESSMENT 51

SELECTED REFERENCES 54

PLANNING TEAM 55

TABLES

Table 1: Cost Estimate Summary 42

MAPS

Vicinity 2
Existing Conditions (Colter Bay Village/Jackson Lake Lodge) 3
Existing Conditions (Colter Bay) 5
Existing Conditions (Jackson Lake Lodge) 7
Colter Bay Site Analysis 9
Development Concept (Colter Bay Village/Jackson Lake Lodge) 29
Development Concept (Colter Bay) 31
Development Concept (Jackson Lake Lodge) 36

INTRODUCTION

Colter Bay Village is on Jackson Lake's eastern shore, approximately 28 miles north of Grand Teton National Park headquarters at Moose, Wyoming, and 11 miles south of the park's northern boundary (see Vicinity map). National Park Service (NPS) facilities include a visitor center with museum and ranger station, an amphitheater, a campground, a picnic area, a boat ramp, trails, a maintenance area, and an employee housing area. Grand Teton Lodge Company (concessioner) facilities include log cabins, tent cabins, an RV campground (trailer park), a restaurant/grill, a general store/snack bar/gift shop, an ice house, a launderette, a post office, a marina (temporarily relocated), two service stations (one with a convenience store), a horse corral, a maintenance area, and an employee housing area (see Existing Conditions maps, sheets 1 and 2).

The Jackson Lake Lodge area is a major development about 5 miles southeast of Colter Bay Village. Grand Teton Lodge Company also operates Jackson Lake Lodge, and the area shares utilities with Colter Bay. Concession facilities include a hotel/motel with gift shops, a bar, restaurants, a swimming pool, a service station, a horse corral, a medical clinic, and an employee housing area (see Existing Conditions map, sheet 3).

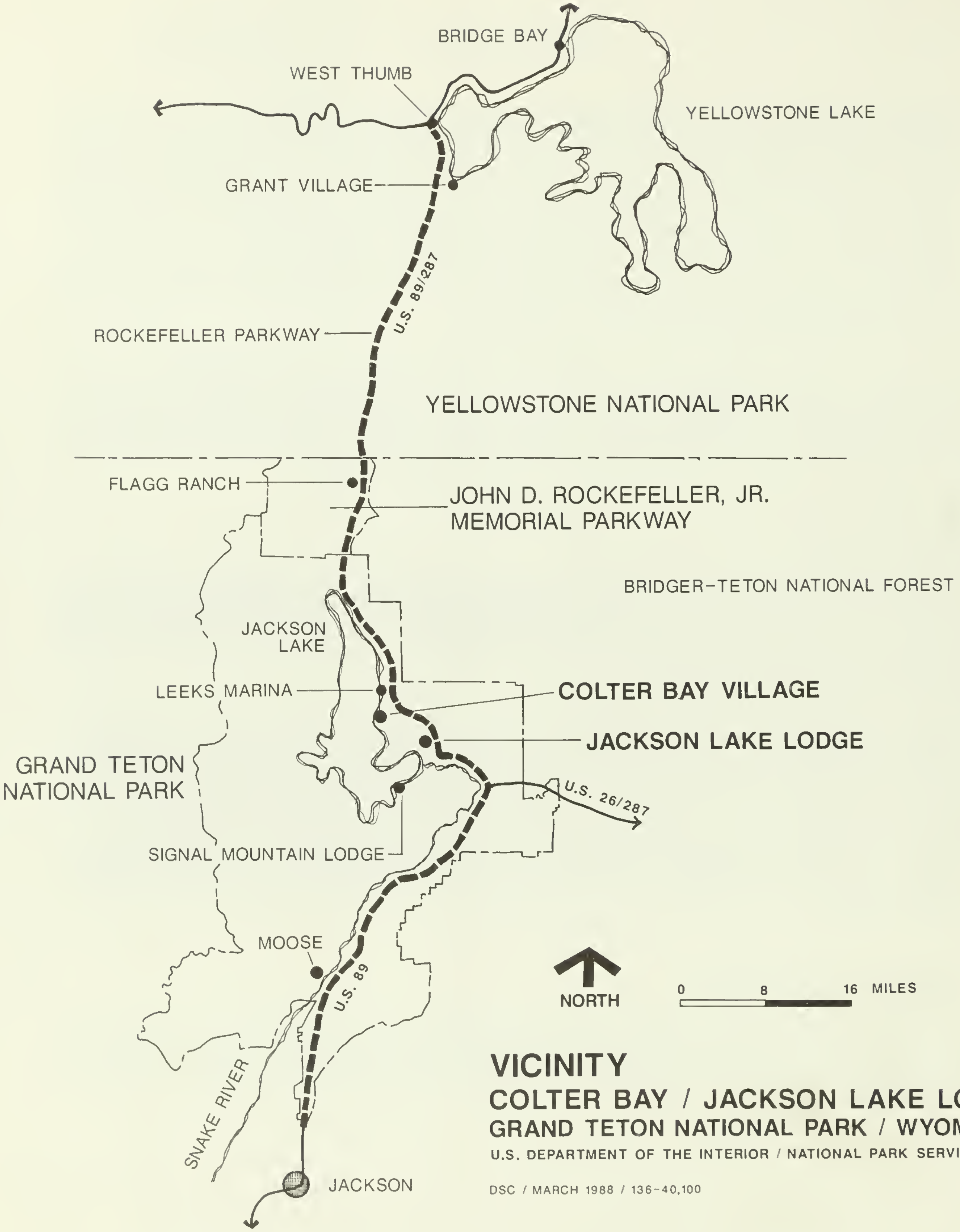
PURPOSE/NEED

This *Development Concept Plan* identifies problems and issues for Colter Bay Village and Jackson Lake Lodge, and it presents a strategy for addressing the identified issues. This document is consistent with the direction established in the Grand Teton National Park *Master Plan* (NPS 1976) and the John D. Rockefeller, Jr., Memorial Parkway *General Management Plan* (NPS 1980).

Colter Bay Village is a product of the NPS Mission 66 program; it was conceived in the late 1950s and completed in the early 1960s. A new development plan is needed because in recent years use has increased, visitor needs have changed, and new concession facilities have been proposed. The general functional organization inhibits visitor circulation and reduces enjoyment of the area. Some facilities are overused and/or deteriorated while others are underused. The entire area needs to be reevaluated to determine the desired visitor experience, appropriate uses, facility capacities, functional relationships, upgrading needs, and possible reduction of adverse environmental impacts (see Colter Bay Site Analysis map).

PROBLEMS AND ISSUES

When the planning project began, the following issues were identified as the significant development, management, and use problems to be resolved through the planning process. These issues apply to Colter Bay Village except where specifically identified for Jackson Lake Lodge.



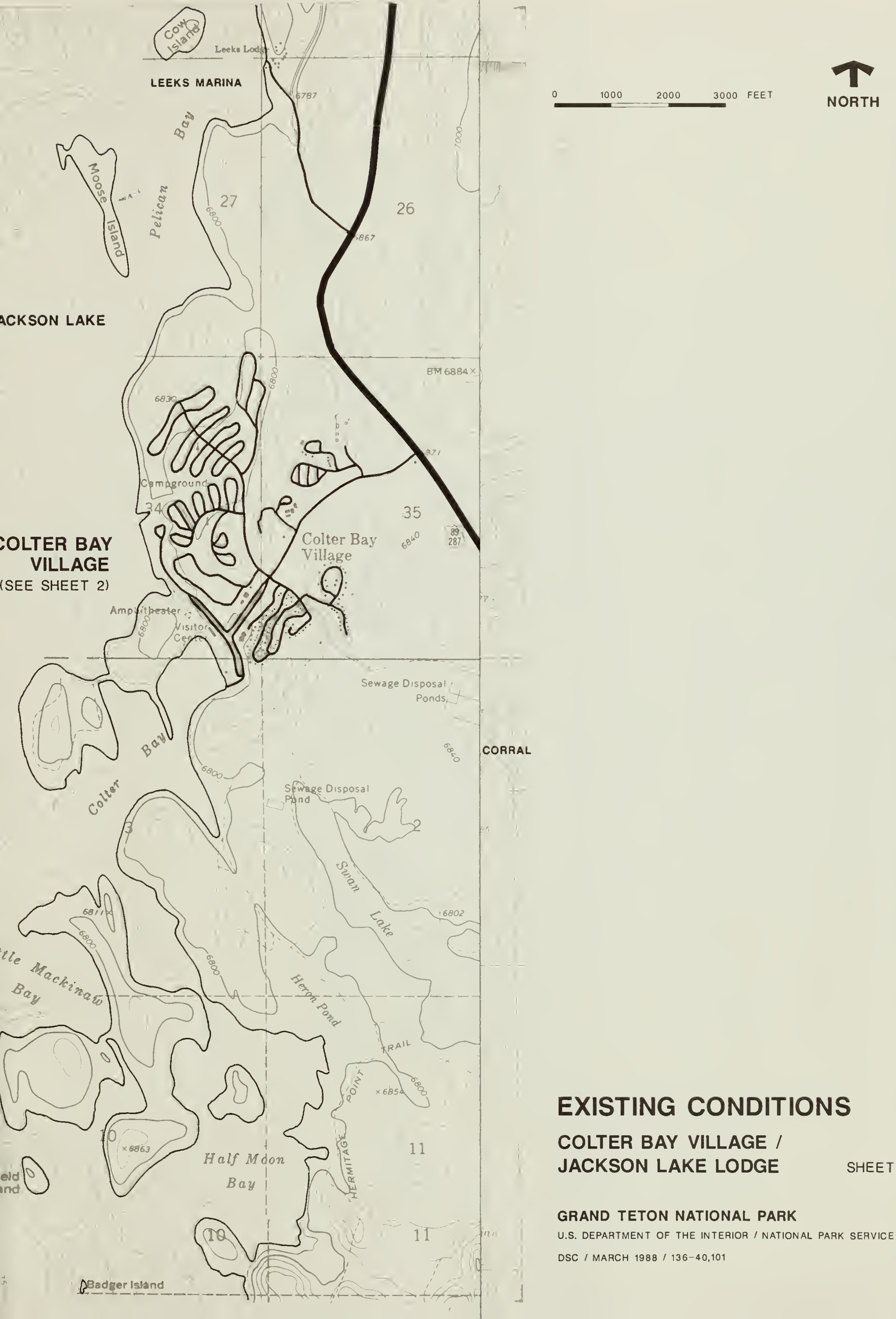
VICINITY

COLTER BAY / JACKSON LAKE LODGE

GRAND TETON NATIONAL PARK / WYOMING

U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / MARCH 1988 / 136-40,100



EXISTING CONDITIONS

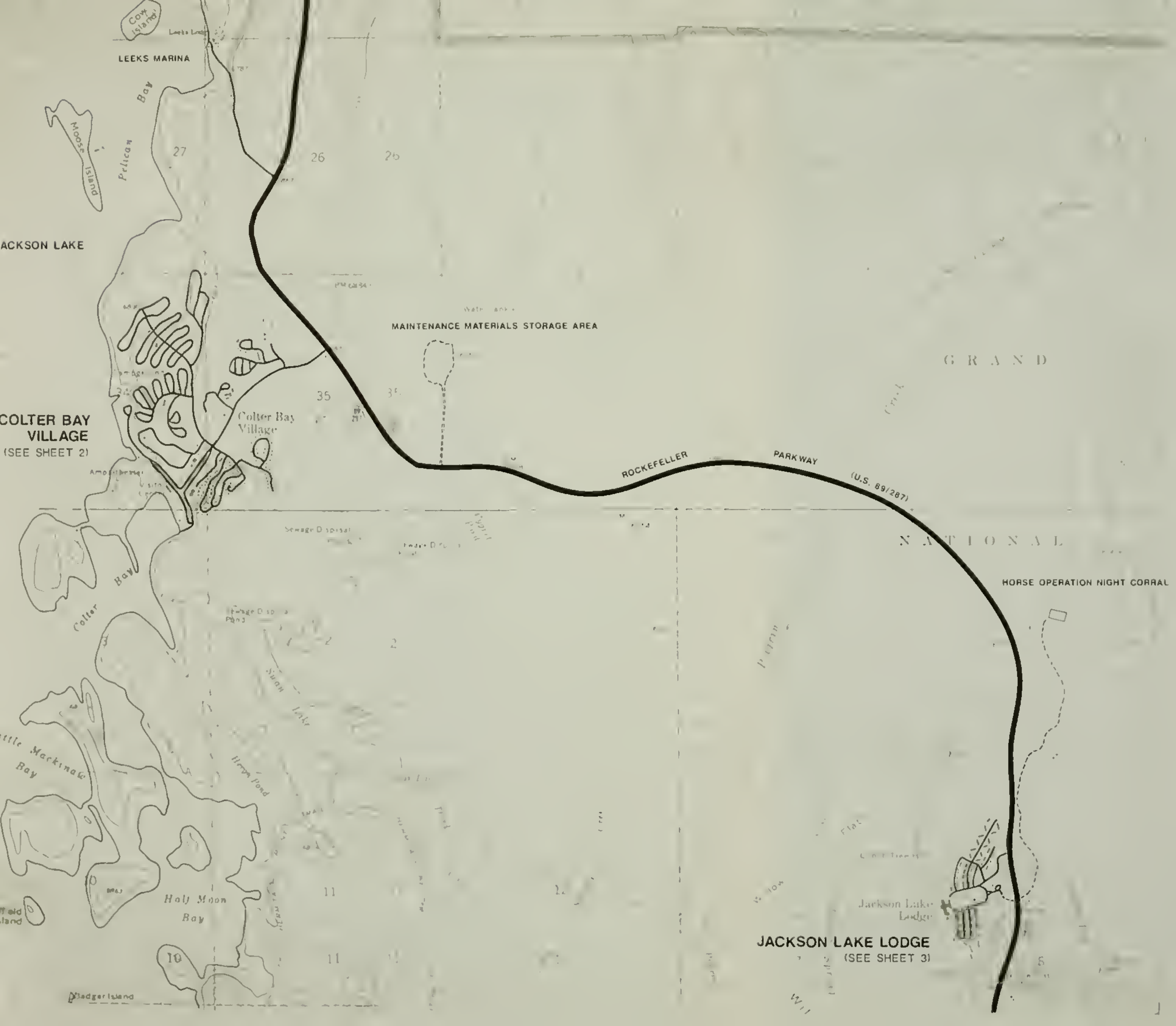
COLTER BAY VILLAGE / JACKSON LAKE LODGE

SHEET 1

GRAND TETON NATIONAL PARK

U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

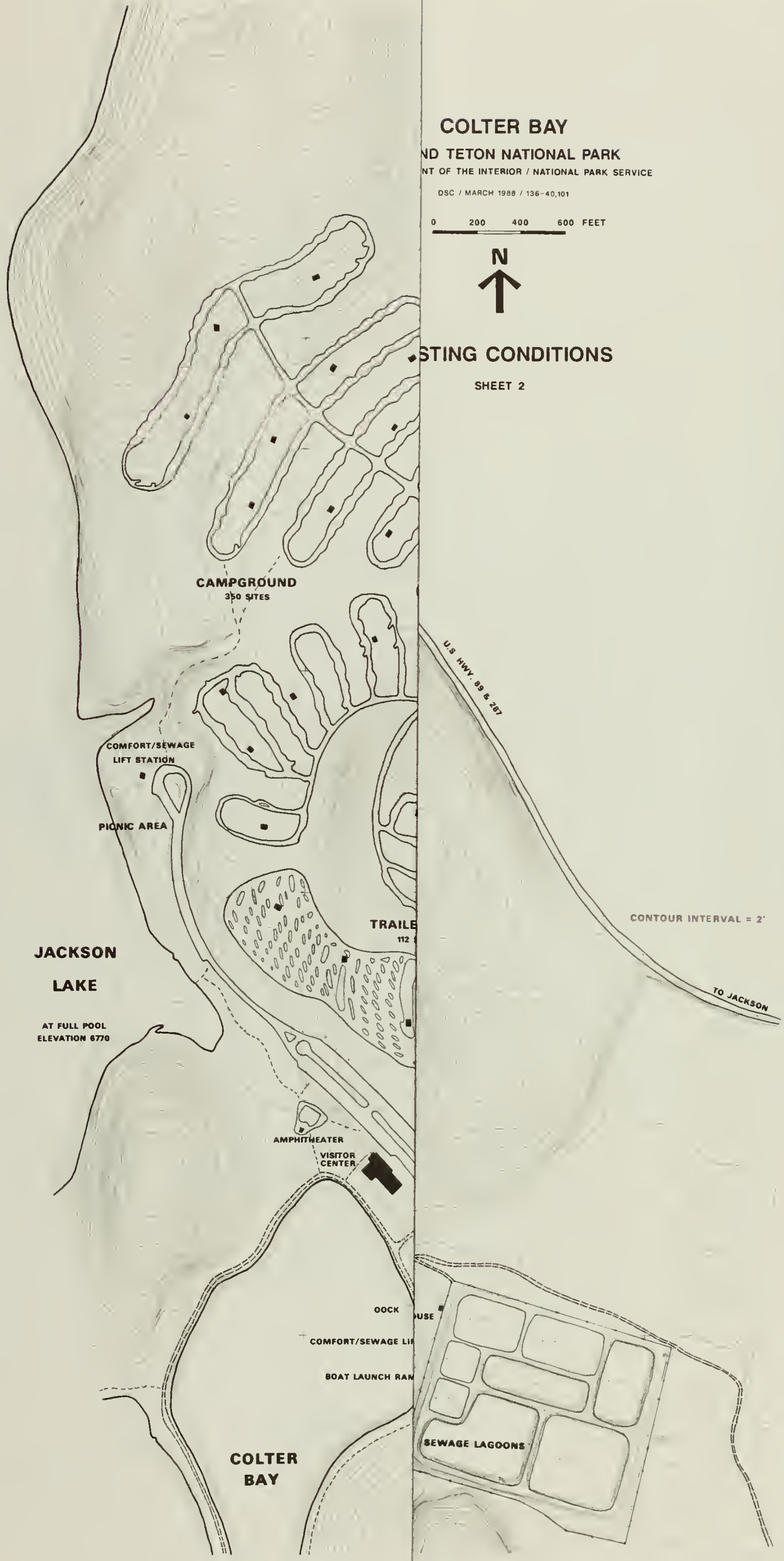
DSC / MARCH 1988 / 136–40,101

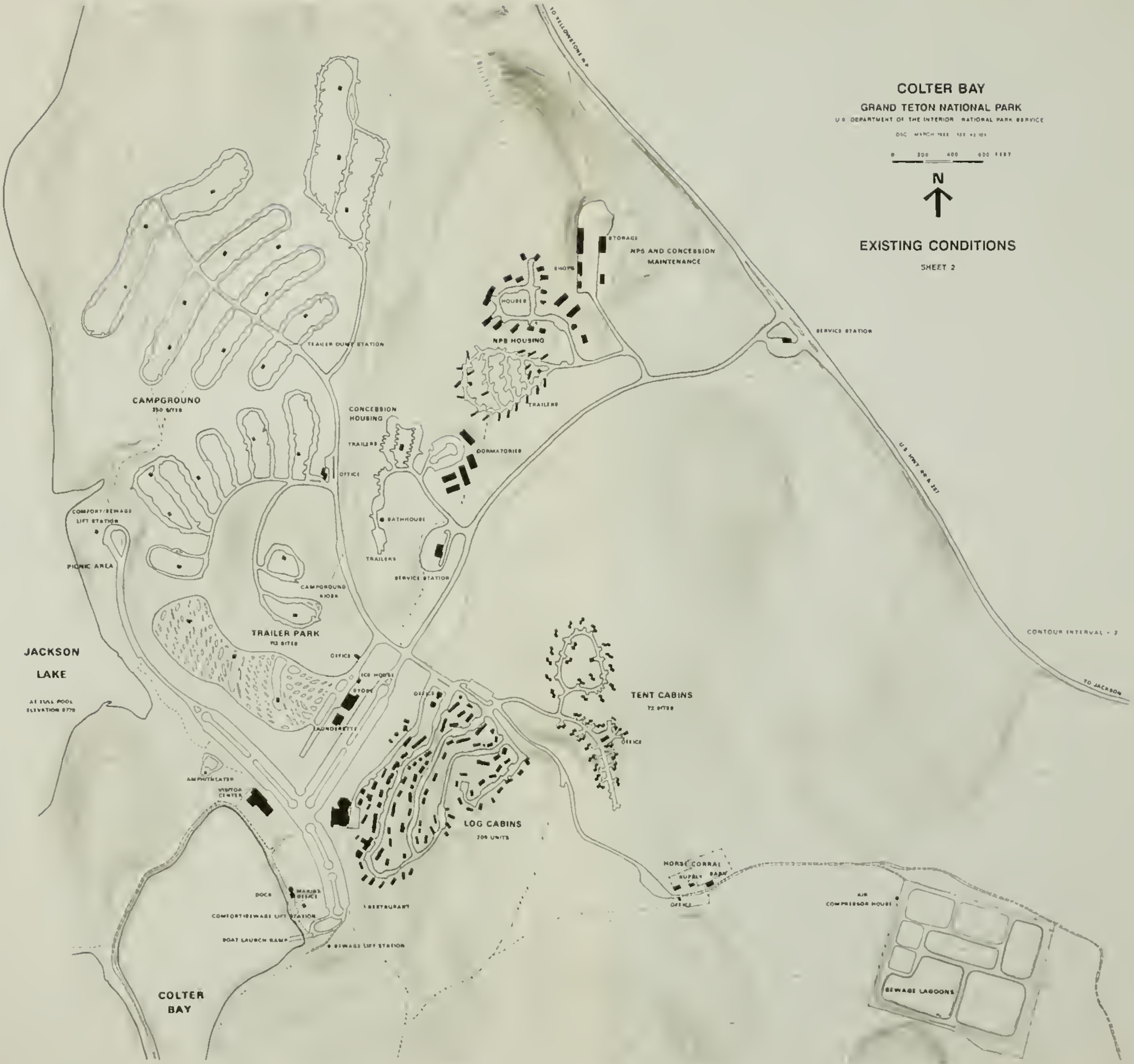


EXISTING CONDITIONS

COLTER BAY VILLAGE /
JACKSON LAKE LODGE
SHEET 1

GRAND TETON NATIONAL PARK
U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE
DSC / MARCH 1988 / 136-40,101


COLTER BAY
ND TETON NATIONAL PARK
NT OF THE INTERIOR / NATIONAL PARK SERVICE
DSC / MARCH 1988 / 136-40,101
0 200 400 600 FEET
N
STING CONDITIONS
SHEET 2
CAMPGROUND
350 SITES
U.S. HWY. 89 & 287
COMFORT/SEWAGE
LIFT STATION
PICNIC AREA
TRAILE
112
CONTOUR INTERVAL = 2'
TO JACKSON
JACKSON
LAKE
AT FULL POOL
ELEVATION 6770
AMPHITHEATER
VISITOR
CENTER
DOCK
USE
COMFORT/SEWAGE LI
BOAT LAUNCH RAI
SEWAGE LAGOONS
COLTER
BAY



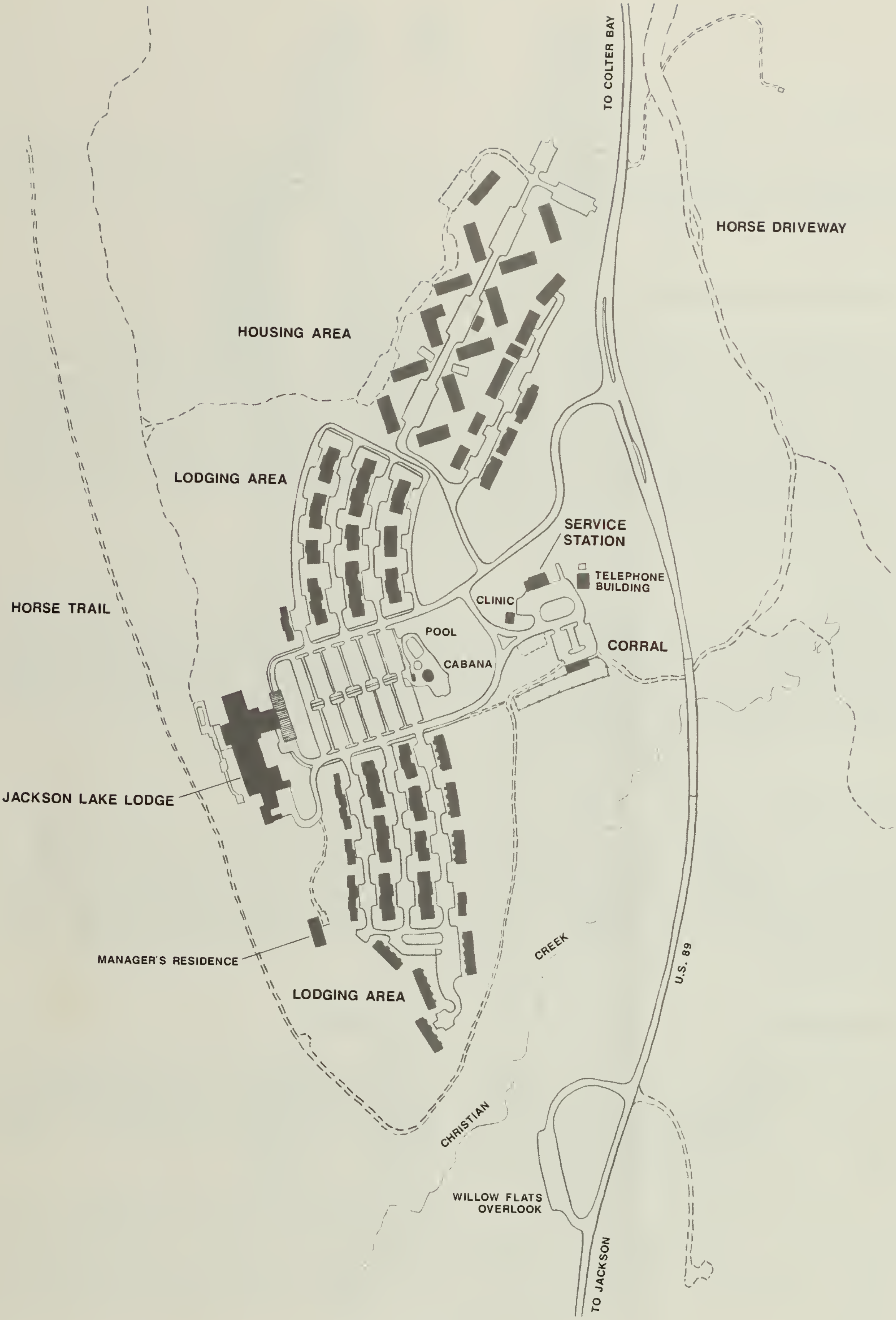
COLTER BAY

GRAND TETON NATIONAL PARK

U.S. DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

EXISTING CONDITIONS

SHEET 2



NORTH

0 200 400 FEET

DSC / MARCH 1988 / 136-40,101

EXISTING CONDITIONS
JACKSON LAKE LODGE

SHEET 3

GRAND TETON NATIONAL PARK
U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

Winter Use

The concessioner proposed a winter lodging and food service operation at Colter Bay. This would require new winterized utilities and employee housing, and perhaps a new entrance road to the lodging site.

Circulation/Roads/Parking

The large parking area between the Colter Bay grocery store and restaurant carries through-traffic to the visitor center, marina, picnic area, and lakefront trails. The area becomes a bottleneck with severe traffic congestion, and numerous accidents have occurred there in recent years. This problem is compounded by a nearby four-way intersection. A first-time visitor must pass through the entire developed area before receiving information at the visitor center. The major parking area's T-shaped design increases driver confusion and orientation difficulties. At the campground, visitors line up along the entrance road waiting their turn to register at the entrance station.

Lodging

The concessioner has proposed replacing the tent cabin village with a more permanent lodging-type facility. The tent cabins are difficult to maintain, but they are often full during the peak season. This document considers the lodging option's implications on the range of lodging opportunities in the park, siting considerations, maintenance requirements, utilities, and potential food service needs.

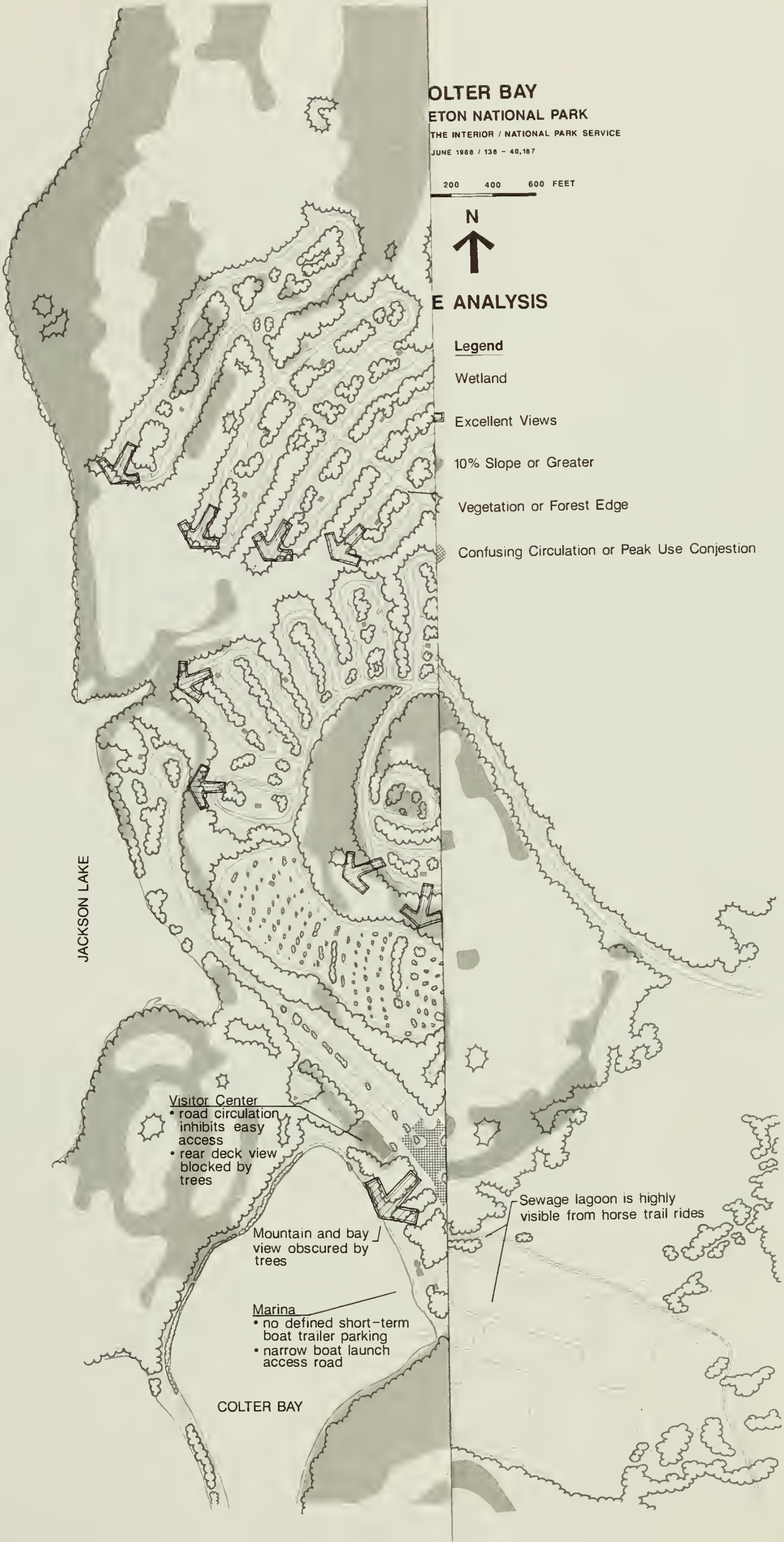
Food Service

The concessioner operates a food service building with a restaurant, a counter-seat grill, and a bar. A separate take-out snack bar is operated adjacent to the general store. The restaurant is crowded at dinner, with occasional long waits for a table. The grill has outlived its 1950s design. Kitchen facilities for both food services are inadequate. The bar is small and office space is lacking. The snack bar is also small and in a congested area.

Marina/Boat Trailer Storage

Colter Bay Marina has 40 rental slips, 60 mooring buoys, rental boats, guided fishing trips, Jackson Lake boat tours, fueling services, and a marina store. The concessioner has expressed a desire to increase the number of slips and reduce the number of mooring sites. The marina office/tackle shop is too small and is poorly designed. The sanitary pumpout station does not work adequately.

Boat trailers are stored at two locations in the Colter Bay area. Short-term storage for boat ramp users is on a portion of the parking lot near Colter Bay Marina. The marina parking and circulation is poorly designed to accommodate cars with trailers. Long-term storage for marina slip users is in an undefined area near the cabin registration office. The site is not secured, it has a negative impact on the area's resources, and the trailers are a visual intrusion.



OLTER BAY
ETON NATIONAL PARK
THE INTERIOR / NATIONAL PARK SERVICE
JUNE 1988 / 138 - 40,187

E ANALYSIS

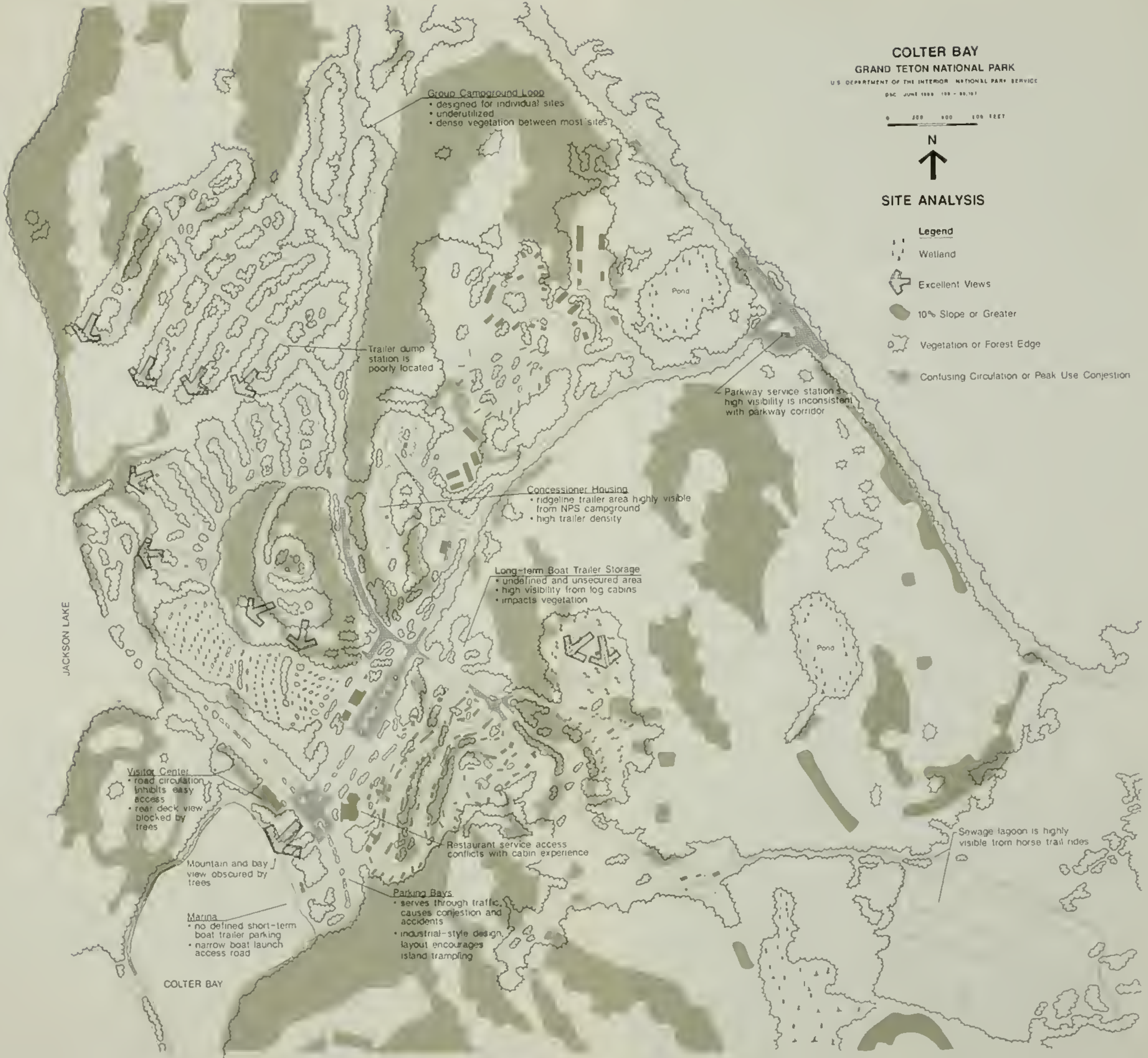
Legend
Wetland
Excellent Views
10% Slope or Greater
Vegetation or Forest Edge
Confusing Circulation or Peak Use Conjestion

Visitor Center
- road circulation inhibits easy access
- rear deck view blocked by trees

Mountain and bay view obscured by trees

Marina
- no defined short-term boat trailer parking
- narrow boat launch access road

Sewage lagoon is highly visible from horse trail rides

COLTER BAY
GRAND TETON NATIONAL PARK
U.S. DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE
FEET
N
SITE ANALYSIS
Legend
Wetland
Excellent Views
10% Slope or Greater
Vegetation or Forest Edge
Confusing Circulation or Peak Use Conjestion
Group Campground Loop
• designed for individual sites
• underutilized
• dense vegetation between most sites
Trailer dump station is poorly located
Pond
Parkway service station's high visibility is inconsistent with parkway corridor
Concessioner Housing
• ridgeline trailer area highly visible from NPS campground
• high trailer density
Long-term Boat Trailer Storage
• undefined and unsecured area
• high visibility from log cabins
• impacts vegetation
Pond
JACKSON LAKE
Visitor Center
• road circulation inhibits easy access
• rear deck view blocked by trees
Mountain and bay view obscured by trees
Restaurant service access conflicts with cabin experience
Sewage lagoon is highly visible from horse trail rides
Parking Bays
• serves through traffic, causes conjestion and accidents
• industrial-style design, layout encourages island trampling
Marina
• no defined short-term boat trailer parking
• narrow boat launch access road
COLTER BAY

Service Stations

The concessioner operates two service stations at Colter Bay and one at Jackson Lake Lodge. There are circulation problems at the station near the the Rockefeller Parkway (US Highway 89). The area becomes congested during busy periods. Existing direct access to the parkway may not be desirable for safety reasons. The second station is about halfway between the parkway and the visitor center. The station sells gas and propane and offers minor auto repair service and a trailer dump station; it is also used by the concessioner for company vehicle maintenance and river raft repair. The parkway station receives over twice the business of each of the other two stations due to its high visibility and convenience to passing motorists. The need for these service stations is reconsidered in this document.

Horse Corrals

The horse corral and trail ride operations at Colter Bay and Jackson Lake Lodge are causing resource problems and visitor use conflicts. Some trails are heavily used for both hiking and horse rides. Horse use increases mud, dust, and manure on the trails, and it may affect wildlife habitat in wetland areas south and west of the developed areas. A major trail ride near Colter Bay passes the sewage lagoons, which detracts from the riding experience. The Jackson Lake Lodge operation has "night" and "day" corrals. The night corral is about 1 mile north of the day corral, which necessitates herding the animals back and forth daily, causing a major stock driveway with braided trails. This arrangement increases operation costs, and stock occasionally get away. There is also an inherent safety hazard with loose-herding the animals. The day corral is near the lodging area, causing some odor, dust, and insect problems for guests.

Concession Merchandising/Storage/Maintenance Space

The concessioner's merchandising operation is in Jackson Lake Lodge. The concessioner has identified a need at the lodge for additional space for other office and support functions. The largest merchandising outlets for the company are at Colter Bay. An existing storage facility at the Colter Bay maintenance area is not large enough to accommodate concession needs.

Campgrounds

The campground office is used for employee housing, and space in the entrance kiosk is very limited. The entrance area becomes congested during busy periods. The group campground loops were designed for standard family camping and the area is underused. Winter camping is currently accommodated at the parking lot near the visitor center.

Ranger Office/Fire Station

The ranger station is in the visitor center and is operated year-round. The fire station is 1 mile from the visitor center in the maintenance area, which causes delays in response time by park rangers. The fire station is inadequate and cannot house all emergency response equipment. Some ranger offices are also located in the fire station. Protection vehicles are parked outside or kept in personal use garages during the winter. The need for a single facility for year-round ranger office space, winter public contact, and a fire station is addressed in this plan.

NPS Employee Housing

The NPS housing area includes a trailer village that is poorly organized and aesthetically unattractive. Trailers are difficult to properly insulate for cold weather, and maintenance costs are generally very high. The appropriate mix of permanent and seasonal housing needs to be determined. This plan identifies needs for long-term housing, trailer replacements and siting, utilities, and recreational facilities for employees.

Concession Employee Housing

The concessioner has indicated a need for additional trailer spaces and dormitory housing units at Colter Bay. The existing dorms house more employees than they were designed to accommodate. Portions of the employee trailer park, where the site density is very high, are highly visible from the NPS-operated campground.

Maintenance

The concessioner has requested additional storage space at Colter Bay and has also indicated a desire to move the laundry operation outside the park. There is no designed flammable storage facility in the maintenance area, and there is limited space for expansion in the maintenance area. This plan includes a maintenance area concept to address NPS and concessioner needs.

Utilities

The NPS maintenance area, the service station by the parkway, and the horse corral have separate septic tank sewage disposal systems. The feasibility of connecting these facilities to the sewage system is evaluated in this plan. A series of lagoons process the rest of the raw sewage from Colter Bay and Jackson Lake Lodge. Some sewer lines leak and/or are undersized. Water from melting snow and heavy rain infiltrates some sewer lines, manholes, and lift stations, overloading the system.

Although the utilities were not designed for winter use, some administrative functions have expanded into a year-round operation. Due to shallow water-line depths, freezing and breakage occurs. Even though many lines are drained for winter, freezing occurs in late spring and early fall. Faucets are left open to prevent freezing damage, but this practice is wasteful and unreliable. The Colter Bay water storage reservoir's interior has deteriorated from freeze-thaw cycles that have caused the concrete to spall. The water storage reservoir serving Jackson Lake Lodge does not provide adequate capacity to satisfy basic storage criteria for domestic use and fire flow.

Several major underground power line locations are unknown. Excavation activities sometimes cause power line breaks and related hazards, delays, and disruptions. Several underground vaults with power lines fill with water, primarily from melting snow, causing an unsafe condition. Overhead power lines and poles are visually unattractive. The power outage frequency is far above normal, creating numerous delays and inconveniences. This is particularly critical during sub-zero weather conditions when a power outage could create serious problems. The main sewage lift station has an emergency generator and the concessioner has several emergency generators, but there is no central emergency power system for the area.

Several underground telephone line locations are also unknown. Excavation sometimes causes service interruptions. Overhead telephone lines and poles are visually unattractive.

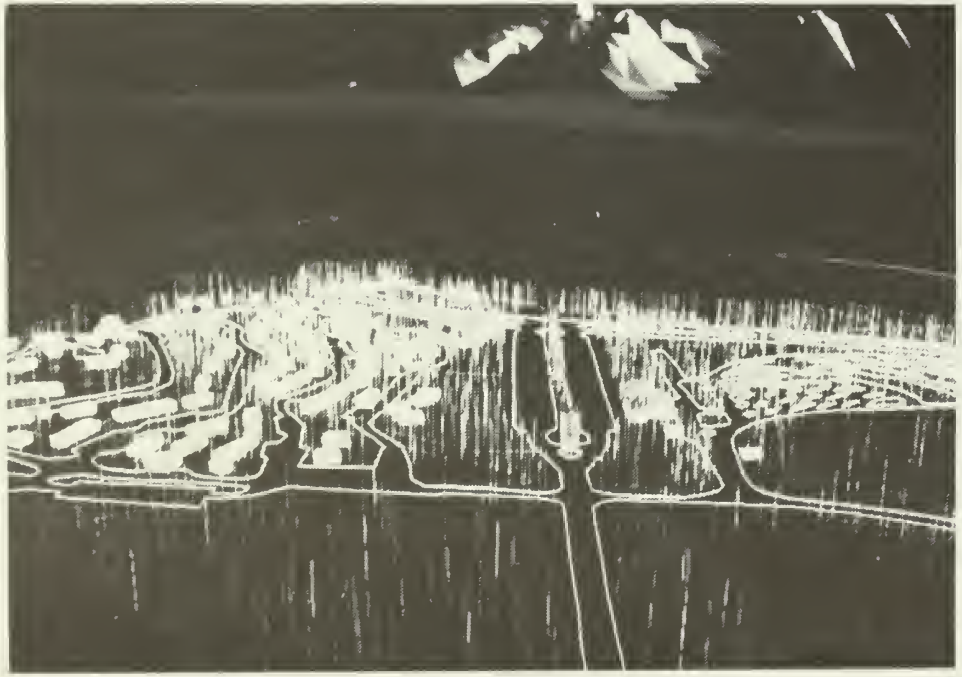
MANAGEMENT OBJECTIVES

Following are objectives that were used to prepare the development concept plan for Colter Bay Village and Jackson Lake Lodge.

- Provide opportunities for a variety of visitor activities, including interpretive, recreational, and service functions.
- Stay within the existing maximum overnight capacities and provide a range of lodging and food service options and prices.
- Improve visitor orientation to the area.
- Encourage pedestrian circulation.
- Reduce traffic congestion and improve visitor safety.
- Maintain and enhance views of Jackson Lake and the Tetons, and minimize visual intrusions.
- Preserve park resources and reduce impacts of existing facilities.
- Reduce maintenance needs.
- Provide a more human scale for parking areas and maintain or enhance the architectural theme for the area.
- Accommodate some future growth in day use within the physical and resource limits of the site.
- Reduce crowded employee housing conditions and bring needed housing up to standard.

Teton Mountains

Colter Bay visitor center



Computer simulation of existing Colter Bay development

Computer simulation showing existing village parking

Colter Bay fire station

Existing storage/merchandise space in Lodge

Winter use at Colter Bay

Marina office

Maintenance materials storage area

Circulation and parking at Colter Bay store

Colter Bay tent cabins

Colter Bay restaurant building

Long-term boat trailer storage

Concession employee trailer park

Colter Bay maintenance area

DESCRIPTION OF THE AREA

NATURAL RESOURCES

Geographic Setting

Colter Bay Village and Jackson Lake Lodge are in northern Teton County, Wyoming. The area is accessed by US 89/287, which continues from Grand Teton National Park north through the John D. Rockefeller, Jr., Memorial Parkway into Yellowstone National Park. The 82-mile parkway (US 89) linking the three parks extends from West Thumb in Yellowstone to the south boundary of Grand Teton (see Vicinity map). The Bridger-Teton National Forest and Teton Wilderness Area are just east of Grand Teton National Park.

Grand Teton and Yellowstone national parks, Bridger-Teton National Forest, and other public land units adjacent to Yellowstone are cooperatively managed as the greater Yellowstone ecosystem, a unique area for wildlife preservation and long-term scientific study.

Water Resources

Jackson Lake is a prominent water feature in Grand Teton National Park, providing visitors with water-based recreation opportunities and a scenic foreground for the Teton Mountains. The natural Jackson Lake was enlarged into a reservoir when the Jackson Lake dam was constructed by the Bureau of Reclamation in 1916. The maximum designed water surface elevation is 6,769 feet. Due to a concern for earthquake hazards and potential dam failure, the maximum level was restricted to 6,760 feet in 1978 and further reduced to 6,745 feet in 1984 until the dam was rebuilt (Bureau of Reclamation/National Park Service 1984). The project was completed in 1988, and the reservoir began refilling to the original 6,769-foot elevation in 1989. A 10- to 12-foot annual surface elevation fluctuation is typical, but it may drop 25 feet or more during unusually dry years (Bureau of Reclamation 1987). The dam and reservoir are part of the Minidoka project, which provides irrigation water storage for downstream agricultural use along the Snake River in Idaho. The 100- and 500-year floods can be controlled to not exceed the maximum water surface elevation of 6,769 feet (Bureau of Reclamation 1987).

Colter Bay Village is adjacent to Colter Bay, which is a sheltered harbor on Jackson Lake. There are numerous unnamed and named ponds east and south of the village, such as Swan Lake and Heron and Cygnet ponds; most are bordered by emergent wetlands. The developed areas are on well-drained upland slopes above these ponds and wetlands.

Between Colter Bay and Jackson Lake Lodge is Willow Flats, a low-lying area traversed by several low-gradient spring creeks and Pilgrim Creek. The area contains numerous riparian wetlands, supporting willows and emergent herbaceous vegetation interspersed with floodplain forest. This biologically productive habitat supports diverse bird and mammal populations. A significant portion of wetlands in Grand Teton National Park is found in Willow Flats.

Pilgrim Creek begins in the Teton Wilderness, flows through the park, and continues across Willow Flats into Jackson Lake. Pilgrim Creek has an unstable channel for most of its length in the park due to a high bed load, resulting in a braided floodplain covered with boulders, cobbles, and gravel. The 500-year floodplain is well removed from both Colter Bay Village and Jackson Lake Lodge, is not affected by either development, and poses no threat to developments other than US 89. The lower 1 to 2 miles of Pilgrim Creek has a more stable channel and adjacent wetlands.

Jackson Lake Lodge occupies an upland bench on the east edge of Willow Flats, which provides a scenic foreground for the Teton Mountains. An old roadbed (predating the existing park road) passes below and immediately west of the lodge, traversing Willow Flats and Pilgrim Creek to the northwest. The roadbed and bridge across Pilgrim Creek are used by horseback riding parties on excursions from the lodge to a picnic site where chuck-wagon style meals are served.

Christian Pond, which is east of the lodge across the parkway, has wetlands along portions of its shoreline. Christian Creek also has adjacent wetlands. This area provides productive waterfowl and moose habitat. Farther east in upland forest is Emma Matilda Lake. The area near Matilda Lake east of the main road is accessible by trail and is popular for hiking and horseback riding from the lodge due to the varied terrain, vegetation types, and waterfowl and mammals using the wetlands.

The Snake River, approximately 1 mile south of the lodge, flows east from Jackson Lake. The river and riparian area are unaffected by the lodge development, but do provide an attraction to visitors.

Air Quality

Grand Teton National Park has nearly pristine air quality as defined in the Clean Air Act. It is a mandatory class I area, where air quality degradation is not acceptable. Visible regional haze does occur in Jackson Hole and to some extent near the two developed areas. Daily visibility measurements are taken at a monitoring station 1 mile north of park headquarters at Moose. Suspended particulates levels are monitored by the Wyoming Department of Air Quality at the Teton Science School near Kelly, Wyoming.

Soils

Pleistocene glaciers underwent several cycles of advance and retreat in the park area, directly or indirectly modifying the valley floor terrain and soils. The glaciers gouged basins, such as the one now occupied by Jackson Lake, and deposited undulating moraines during their recession. As the glaciers retreated, melt-water outwash streams further modified the landscape by transporting glacial debris and redepositing alluvial material. The area between Colter Bay and Jackson Lake Lodge is a mosaic of soil and drainage types, which also contributes to the ecological diversity and scenic interest of the area. Soils from moraine deposition generally have a higher fine particle content and greater moisture retention. These moraine soils generally underlie the forested areas of the valley floor in Grand Teton National Park. Small basins, or kettles, left in the moraine deposits form pothole ponds and wetlands such as Swan Lake and Christian Pond. Stream-deposited glacial outwash material has a lower fine particle content than moraine material, with resulting increased permeability. These well-drained soils have less water retention capability than moraine-derived soils and generally underlie the shrub-grassland sagebrush flats on the valley floor.

Vegetation

Vegetation types vary somewhat between Colter Bay Village and Jackson Lake Lodge due to differing soil and drainage regimes. In general, the vegetation is typical of central Rocky Mountain subalpine regions. Upland forests on moraine-derived soils are lodgepole pine succeeding to subalpine fir. Dryer sites have an understory of grouse whortleberry, elk sedge, fescue, and kinnikinnick. Sites with more soil moisture may have an understory of bluejoint reedgrass. Upland meadows are usually underlain by well-drained gravelly alluvial soils that support big and low sagebrush, balsam root, gilia, lupine, and Idaho fescue.

There are several wetland types in the area. The floodplain forest along Pilgrim Creek supports narrow-leaf cottonwood, blue spruce, and willow, with an understory of bluejoint reedgrass, tufted hairgrass, Nebraska sedge, and shrubby cinquefoil. Shrub-scrub wetlands adjacent to springs, ponds, and slow-moving streams have abundant willows, and they grade into emergent wetlands with rushes and cattails. Wet meadows have various grasses and sedges.

Exotic nuisance vegetation occurs along roadsides and other disturbed sites and is an increasing concern in the park. Spotted knapweed, musk and Canada thistle, butter-and-eggs, and cheatgrass are adept at colonizing disturbed dry sites, outcompeting native vegetation and, in some cases, spreading out into undisturbed native vegetation. Although this seems to be more prevalent in other parts of the park, it is a concern at all construction sites.

Wildlife

The Jackson Lake sport fishery is a visitor attraction in the area. Lake trout, introduced in 1890, are the dominant game fish. The native Snake River cutthroat trout now occupies a secondary position. Nongame fish include Utah suckers, Utah chubs, and redside shiners.

Canada goose, mallard, teal, Barrow's goldeneye, common merganser, trumpeter swan, and sandhill crane are commonly seen water birds at the pothole ponds, Jackson Lake, and Willow Flats. Swan populations in the greater Yellowstone ecosystem seem to be declining (Shea 1979), and they are given special management consideration by federal and state land management personnel in the area.

Other common birds in the area the are red-tailed hawk, Cooper's hawk, gray jay, raven, barn swallow, mountain bluebird, and mountain chickadee. Osprey nests are periodically found along Jackson Lake's east shore, north and south of Colter Bay; however, nests are frequently destroyed by high winds blowing across the lake.

Mammals commonly found in the area are deer mouse, Uinta ground squirrel, snowshoe hare, porcupine, beaver, skunk, coyote, elk, mule deer, moose, and black bear. Pronghorn and bison occasionally use the area.

Part of the Jackson Hole elk herd passes through the area during spring and fall migrations between the summer range in the highlands to the northeast and the winter range on the National Elk Refuge near Jackson. Some elk spend the summer and fall in or near the developed areas, and the forested Emma Matilda/Two Ocean lakes area is spring calving habitat.

Moose are frequently seen in the excellent wetland habitat near the developed areas. The Willow Flats/Hermitage Point area is important winter range for resident populations and for moose that move in from the summer range on the adjacent national forest. About 150 moose winter in that area.

Threatened and Endangered Species

Four species listed by the U. S. Fish and Wildlife Service and protected by the Endangered Species Act of 1973 occur around the developed areas: (1) the endangered bald eagle (*Haliaeetus leucocephalus*), (2) the endangered peregrine falcon (*Falco peregrinus*), (3) the endangered whooping crane (*Grus americana*), and (4) the threatened grizzly bear (*Ursus arctos horribilis*).

Several bald eagle pairs nest along Jackson Lake, with the nearest nest approximately 2 miles from Colter Bay and Jackson Lake Lodge. Areas within a ½-mile radius of nests are posted closed to visitor entry. As many as 15 spring and fall migrants at a time also use the lake area. Willow Flats and the adjacent portion of Jackson Lake are important foraging areas. The developed areas are not used by the eagles.

Peregrine falcons do not nest near the developed areas, although waterfowl populations in the Willow Flats area may be a source of prey. Attempts have been made to introduce nesting pairs on the west side of Jackson Lake.

Individual whooping cranes from the Grays Lake, Idaho, population have been observed foraging in the Willow Flats area. Sandhill cranes nest in this area, and any sandhill crane nesting habitat is considered as potential whooping crane nesting habitat by the Fish and Wildlife Service (FWS) because the birds nest together elsewhere.

Grizzly bears are periodically observed in or near the developed areas, usually east of US 89. They are generally passing through during spring and fall migrations, although they may establish territories. The Interagency Grizzly Bear Committee (IGBC) oversees management of the species in the greater Yellowstone ecosystem, which encompasses Yellowstone and Grand Teton national parks, adjacent national forests, and other lands in the area. The *Grizzly Bear Recovery Plan* was approved and published by the committee in 1982 for conservation of the species in the coterminous United States (FWS 1982). The *Interagency Grizzly Bear Guidelines*, approved and published by the committee in 1986, identify land uses and actions appropriate for species conservation (IGBC 1986). Public lands with suitable habitat are classified into various "management situations." Management situation number 1 areas are the highest priority for survival of the species and have the greatest restrictions on human use. Number 2 areas have somewhat lower quality habitat values and fewer restrictions on human use, and number 3 areas include recreational developments and the adjacent area within 250 yards, where free-ranging grizzlies are not tolerated.

The area east of US 89 and north of Pilgrim Creek is classified as management situation number 1. The area east of US 89 and south of Pilgrim Creek, including the Emma Matilda/Two Ocean lakes area, is classified as number 2, as is the Willow Flats/Hermitage Point area outside the developed areas. The developed areas are classified as number 3.

CULTURAL RESOURCES

Archeological Resources

An archeological survey was conducted during reservoir drawdown for dam repair (NPS Connor et al. 1987). Survey evidence indicates that shoreline areas above the natural level of Jackson Lake were used seasonally by Paleo-Indians for over a 10,000-year period – from the end of the last glaciation until approximately A.D. 1600. Most sites are now below the full-pool elevation of the reservoir. Seasonal camps were set up for harvesting and drying plants from the rich meadows and for hunting and fishing. Indian use of the valley after 1600 decreased and became sporadic. Two archeological sites were found below the high water level in Colter Bay (NPS, Connor et al. 1987). They are not affected by the marina or other structures in the area.

An archeological intensive surface survey was performed in and around the Colter Bay Village and Jackson Lake Lodge developments in 1973. No cultural material was found (NPS, Wright 1973). The area north of the Colter Bay horse corral, being considered below for an employee trailer park, was outside of the intensive survey area but was covered by a reconnaissance survey. There are no known sites within this potential trailer area, but a more detailed investigation will be required before construction.

Historic Resources

The Colter Bay Village and Jackson Lake Lodge developments were constructed in the late 1950s/early 1960s as part of Mission 66, an extensive nationwide park facility development program. Colter Bay has many old log cabins that are used for overnight guest accommodations. Some cabins may date back to 1900, but all were moved onto the site from other locations around the valley and altered for the intended use. As such, the historic context of the cabins has been lost, and information on the age and origin of each structure is lacking. Therefore, the cabins are not considered eligible for nomination to the National Register of Historic Places. None of the modern buildings at Colter Bay are considered eligible (Gregory Kendrick, Rocky Mountain Regional Office, personal communication).

The Jackson Lake Lodge complex is less than 50 years old but was evaluated for significance because it was designed by Gilbert Stanley Underwood, a well-known architect of national park lodges. The lodge complex was determined ineligible for the national register in 1988 (Rodd Wheaton, Rocky Mountain Regional Office, personal communication).

VISITOR USE

Colter Bay Village and Jackson Lake Lodge provide a range of visitor use activities and services. The primary summer attractions are viewing and photographing the Teton Range, boating and fishing on Jackson Lake and the Snake River, hiking, horseback riding, and viewing wildlife. Extensive interpretive services are provided at Colter Bay, including nature walks, evening programs, and a museum housing the David Vernon Indian Arts Collection. Limited interpretive walks and evening programs are offered at Jackson Lake Lodge.

The summer visitor season runs from early June until early September, with the peak use period occurring between June 15 and August 15. The Jackson Lake Lodge, Colter Bay cabins, tent cabins, RV campground, and NPS campground usually operate at full capacity during this period. Concession and NPS facilities are open from about June 5 until about September 30. A steady trend over the last 10 years has been for increasing travel during late May to early June and early September to late October. Visitor use during this period is weather dependent and highly unpredictable due to possible late spring and early fall snow storms.

Other visitor activity centers in the area include Leek's Marina, which provides marina and food services about 2 miles north of Colter Bay, and Flagg Ranch, about 18 miles north along the John D. Rockefeller, Jr., Memorial Parkway, which provides lodging, camping, a service station, a store, horseback riding, and restaurant services. Signal Mountain Lodge, about 5 miles south of Jackson Lake Lodge, provides lodging, a marina, a store, a service station, and restaurant services. An NPS-operated campground adjoins the lodge area.

Many travelers combine their visit to Grand Teton National Park with a trip to Yellowstone National Park, which is only about 20 miles north of Colter Bay. Yellowstone's south entrance is the most popular entrance in the park. The nearest full-service visitor facility in Yellowstone is Grant Village, about 38 miles north of Colter Bay.

The winter use season occurs from late December through March. The primary winter activity at Colter Bay is ice fishing on Jackson Lake. Snowmobiles and snowplanes[1] are used to reach remote areas on the lake. A small amount of cross-country skiing, snowshoeing, and sight-seeing occurs out of the Colter Bay area. Although Colter Bay Village is used primarily as a parking area for day use on the lake, overnight camping is permitted in the parking lot, and a heated restroom with running water is open at the visitor center. A fee is charged for this camping, and use levels are very low. Winter visitors are largely from Teton County and nearby areas.

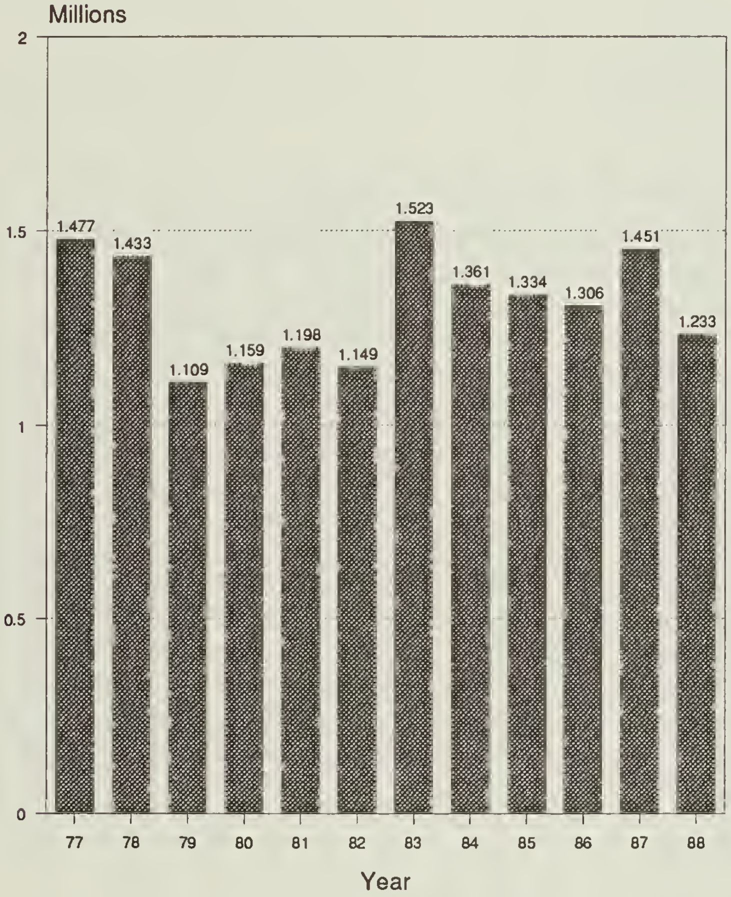
Flagg Ranch along the John D. Rockefeller, Jr., Memorial Parkway is near the end of the plowed portion of US 89 in the winter, and it is a major winter use operation and staging area for over-snow trips into Yellowstone National Park. The *General Management Plan* for the parkway (NPS 1980) includes plans for redevelopment of lodging, restaurant, and other visitor services for winter accommodations at Flagg Ranch.

---

[1] The *Code of Federal Regulations* defines snowplanes as "self-propelled vehicles intended for over-the-snow travel, having a curb weight of not more than 1,000 pounds (450 kilograms), mounted on skis in contact with snow, and driven by a pusher-propeller."

Grand Teton National Park annual recreation visits for the last 12 years are shown below.

Figure 1. Recreation Visits to Grand Teton National Park 1977-1988



Note: Recreation visits are entries for recreational purposes. They exclude residential traffic, through traffic, and persons traveling on business in the park.

EXISTING DEVELOPMENT

Colter Bay Village

Access to Colter Bay Village is from the Rockefeller Parkway. The developed area is about 340 acres. As mentioned above, facilities are provided by the Park Service and Grand Teton Lodge Company. The Park Service operates the following facilities:

- a 350-site campground
- a 12-site group campground
- an 800-seat amphitheater
- a picnic area
- a visitor center with museum and ranger station
- a boat ramp
- roads
- parking areas (450 spaces)
- walks and trails
- water and sewage systems
- employee housing
- maintenance facilities

The lodge company operates the following facilities:

- a 209-unit log cabin area (in 95 cabin buildings) with a 678-person capacity
- a 112-site trailer park with individual utility hookups
- 72 canvas/log ("tent") cabins with a 288-person capacity
- a 187-seat restaurant, a 66-seat grill, an employee cafeteria, and a 41-seat bar
- a general store offering groceries, gifts, sporting goods, clothes, and an adjacent snack bar (with 16 outdoor seats)
- a bicycle rental service
- an ice house
- a post office
- a launderette and bathhouse
- two service stations (one full-service station with mechanics bays and a trailer dump station, and one self-service station with a convenience store)
- a corral with about 65 horses
- a maintenance storage building
- a marina with tackle shop, motor boat/rowboat/canoe rental, 60 boat-mooring buoys and 40 boat slip rental spaces, two scenic cruise boats, and boat fuel sales
- five dormitories and 77 trailer spaces for concession employees

Jackson Lake Lodge

This 78-acre developed area, also operated by the Grand Teton Lodge Company, includes a main lodge building with the following:

- a great room and 42 guest rooms
- a dining room
- a grill
- gift shops
- a cocktail lounge
- an apparel shop
- a beauty shop
- conference facilities
- an employee cafeteria

Maintenance, office, laundry, and food-handling areas are in the basement.

The Lodge Company also operates the following facilities in the developed area:

29 detached motor lodge buildings with 343 guest rooms
a swimming pool
a bicycle rental facility
a service station with mechanics bays
a medical clinic
a corral with about 75 horses
employee residences and dormitories

A telephone company building and tour bus parking are near the corral, and a night corral is about 1 mile north of the lodge.

The Park Service maintains roads, parking areas, walks, trails, and water and sewage systems for the area. Electrical and telephone systems are provided by commercial companies. Additional details on the utility systems are provided below.

UTILITIES

Utilities at Colter Bay and Jackson Lake Lodge include water, wastewater, electrical, and telephone systems. The Park Service provides a potable water supply, treatment, storage and distribution, and wastewater collection, treatment, and disposal. Electrical supply and primary distribution are provided by Lower Valley Power and Light; the Park Service is responsible for secondary electrical power distribution. Telephone service is provided by Mountain Bell. The electrical and telephone utilities are publicly owned utilities serving the state of Wyoming. Because the Park Service has total responsibility for the water and wastewater utilities, the emphasis in this document is placed on these utilities. The water and wastewater utilities were originally designed to serve summer use facilities. The Colter Bay maintenance area and portions of the NPS housing area and visitor center are now used year-round, as are part of the housing area and the administrative offices at Jackson Lake Lodge. With the severe winter climate, it is very difficult to keep water and wastewater utilities (that were designed for summer) operating in the winter. Utilities are kept functioning throughout the winter at great cost to the maintenance budget and by the dedication and innovation of the maintenance staff.

Water System

Potable source water for the two areas is obtained from three cased wells adjacent to Pilgrim Creek, upstream from the parkway. The wells produce a sufficient quantity and quality of water to satisfy demand at both Colter Bay and Jackson Lake Lodge year-round. The pumping equipment has recently been upgraded to improve system reliability.

Because the source water quality is high, the only required treatment is disinfection. This is accomplished in the pump houses at the wells by adding chlorine in a hypochlorite solution. Necessary contact time is provided in the water transmission lines and the storage tanks. Colter Bay and Jackson Lake Lodge have separate, 500,000-gallon, buried concrete reservoirs. The Colter Bay tank has adequate capacity to meet existing standard storage requirements (two-day supply during the peak month plus fire-flow storage). The tank was recently insulated, and additional cover material was placed over it to protect against freezing and improve winter operation. The tank interior has deteriorated from previous winter freeze-thaw cycles, resulting in spalling concrete. The Jackson Lake Lodge reservoir is about 300,000 gallons below the capacity needed to satisfy basic storage criteria.

As mentioned above, utilities were designed for summer operation only. Water lines were buried at a depth of just 3-4 feet. One of the biggest problems caused by increased winter functions at Colter Bay is freezing water lines due to deep frost depths. Numerous freeze-ups have been documented, and water service disruptions have lasted up to two weeks. In an effort to minimize freeze-ups, bleeder valves are opened in the winter to keep water flowing in the lines and inhibit freezing. Water production records for Colter Bay indicate that about 100,000 gallons per day (gpd) are wasted in the winter to keep the lines open.

Water-line freezing problems at Jackson Lake Lodge are similar, but not as severe. Records indicate that about 35,000 gpd are used at the lodge during the winter to prevent water line freezing.

If the water system is out of service, fire protection capabilities are affected. Year-round fire protection is needed to protect employees living in the housing areas and large structures such as the Colter Bay visitor center and Jackson Lake Lodge main building.

Wastewater System

The Colter Bay wastewater collection system has nearly 5 miles of vitrified-clay pipe, 145 manholes, four lift stations, and 1,700 feet of force main. The vitrified clay pipe has a history of inflow/infiltration problems, evidenced by heavy flows in the collection lines during spring snowmelt and after heavy rainfall. Several years ago, sections of collection lines were repaired by slip-lining methods. One campground lift station currently needs replacement due to severe spring water infiltration. Both campground lift stations lack backup electrical power and adequately sized overflow tanks. The main lift station, which pumps all Colter Bay wastewater to the treatment lagoons, has a standby electric generator. Grease accumulation in the collection lines and at the main lift station is an enormous operation and maintenance problem. There are no grease traps at the restaurants. Winter use has not yet affected the collection system due to the high water volume entering the system from the housing area "bleeders." Freezing problems could occur at plowed road crossings if bleeder water is reduced.

The Jackson Lake Lodge wastewater collection system is similar to Colter Bay's. The system is more compact and does not exhibit the same inflow/infiltration problems. A large lift station pumps raw wastewater through an 8,000-foot force main to the central treatment facilities near Colter Bay. The lift station has a backup gasoline engine pump for use during power outages. The collection system is not heavily used in winter, and off-season problems are not severe.

Wastewater from both Colter Bay and Jackson Lake Lodge is treated by aerated lagoons near Colter Bay. Separate treatment units and slightly different processes are used for each area. Colter Bay wastewater is stabilized in aerated lagoons that use surface-type floating aerators. This equipment limits operation of these lagoons to the ice-free months. The lagoon capacity is adequate to provide treatment for existing use (110,000 gpd for the peak month), plus a 30 percent increase if needed.

Jackson Lake Lodge wastewater is also treated in an aerated lagoon, but air is supplied by blowers through perforated tubing installed in the bottom of the lagoon. This permits winter operation as necessary. Currently, the tubing has many plugged perforations and needs to be replaced. Treatment capacity is adequate for existing summer use (210,000 gpd for the peak month) plus a 40 percent increase if needed during the summer. The winter capacity is less because the water temperature is lower. It is estimated that this lagoon has a maximum winter capacity of 100,000 gpd. The existing winter use is about 50,000 gpd. The majority of this is "bleeder water," emptied into the collection lines to prevent water-line freezing. The entire facility is designed so that flows can be interchanged between lagoons.

Treated effluent is disposed of in percolation ponds common to both lagoon systems. Evaporation and slow percolation through the pond bottom return the water to the natural hydrologic cycle. The pond capacities are adequate for existing use and a small (15-20 percent) increase if needed.

The septic tank/leachfield systems serving the parkway service station, horse concession, and NPS maintenance area are functioning properly. It is not economically feasible to connect these facilities to the central wastewater collection system under current conditions.

DEVELOPMENT CONCEPT PLAN

CONCEPT

Colter Bay Village and Jackson Lake Lodge are the two areas classified in the Grand Teton National Park *Master Plan* as "high-density recreation" areas offering a "large variety of visitor accommodations and services, which include diverse lodging facilities, a swimming pool, horse concessions, food, and automotive services." The master plan set a parkwide overnight capacity for Grand Teton National Park, freezing it at 1971 levels. The basic concept for this *Development Concept Plan* is to continue current uses at Colter Bay and Jackson Lake Lodge, rehabilitate the areas, and redesign or relocate some facilities. The intent is to provide improved opportunities for the existing visitor activities and services, maintain existing overnight capacities, continue a variety of lodging and food service types and price ranges, improve visitor orientation information, encourage pedestrian circulation, reduce traffic congestion and improve safety, maintain and enhance views, preserve park resources, reduce maintenance, provide human-scale development, and accommodate some future growth in day use within the physical and biological limits of the site. New facilities will be designed to be compatible with existing development (see design guidelines in appendix A). Already disturbed or abandoned areas will be rehabilitated and the sites revegetated. Following are more detailed elements of the development plan. All actions refer to Colter Bay Village unless specified for Jackson Lake Lodge.

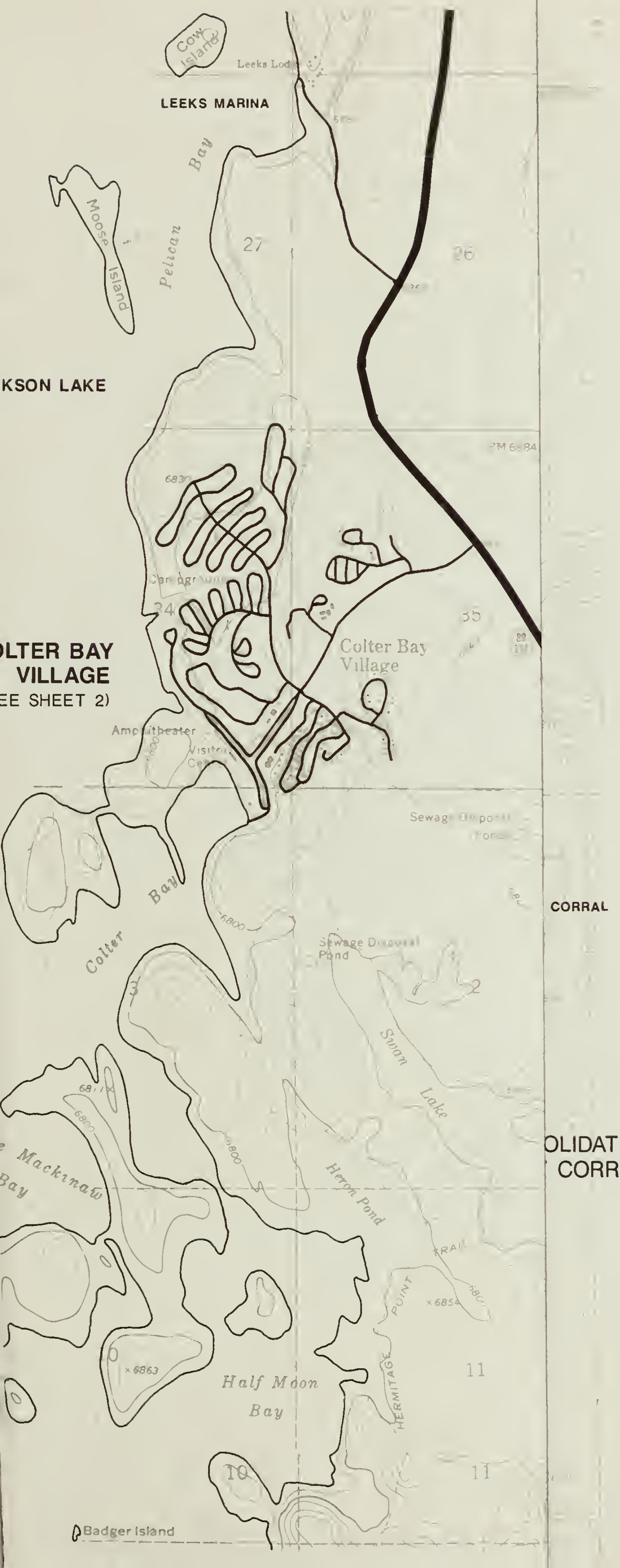
VISITOR EXPERIENCE/ACTIVITIES

The visitor experience at Colter Bay Village and Jackson Lake Lodge is oriented to the lake, water recreation, scenic mountain views, and resource interpretation. The experience includes accommodations and services in a high-quality park setting. Major visitor activities that will be continued include boating, fishing, hiking, horseback riding, picnicking, camping, lodging, dining, interpretive walks, evening talks, and other interpretive services.

This development plan recommends that winter use levels continue as at present. Ice fishing, snowplaning, cross-country skiing, and minimal winter camping will continue at Colter Bay. The *General Management Plan* for the parkway (NPS 1980) states that the Flagg Ranch area will continue to be a major winter use site and the staging area for Yellowstone winter activities. As this development concept plan was being finalized, the Park Service initiated a joint winter use plan for Grand Teton National Park, John D. Rockefeller, Jr., Memorial Parkway, and Yellowstone National Park. The winter use plan may propose changes in the range of visitor activities at Colter Bay or Jackson Lake Lodge. Therefore, decisions on winter activities in this development concept plan are tentative, pending the outcome of the winter use plan. However, should a winter visitor operation be proposed for either developed area, it would not substantially affect the development concept plan presented below. There may be a need to amend this development concept plan in the future to reflect final decisions reached in the winter use plan.

CIRCULATION AND PARKING

Vehicular circulation and parking will be redesigned and improved in the village area (see Development Concept map, sheets 1 and 2). Improved signing along the entrance road will



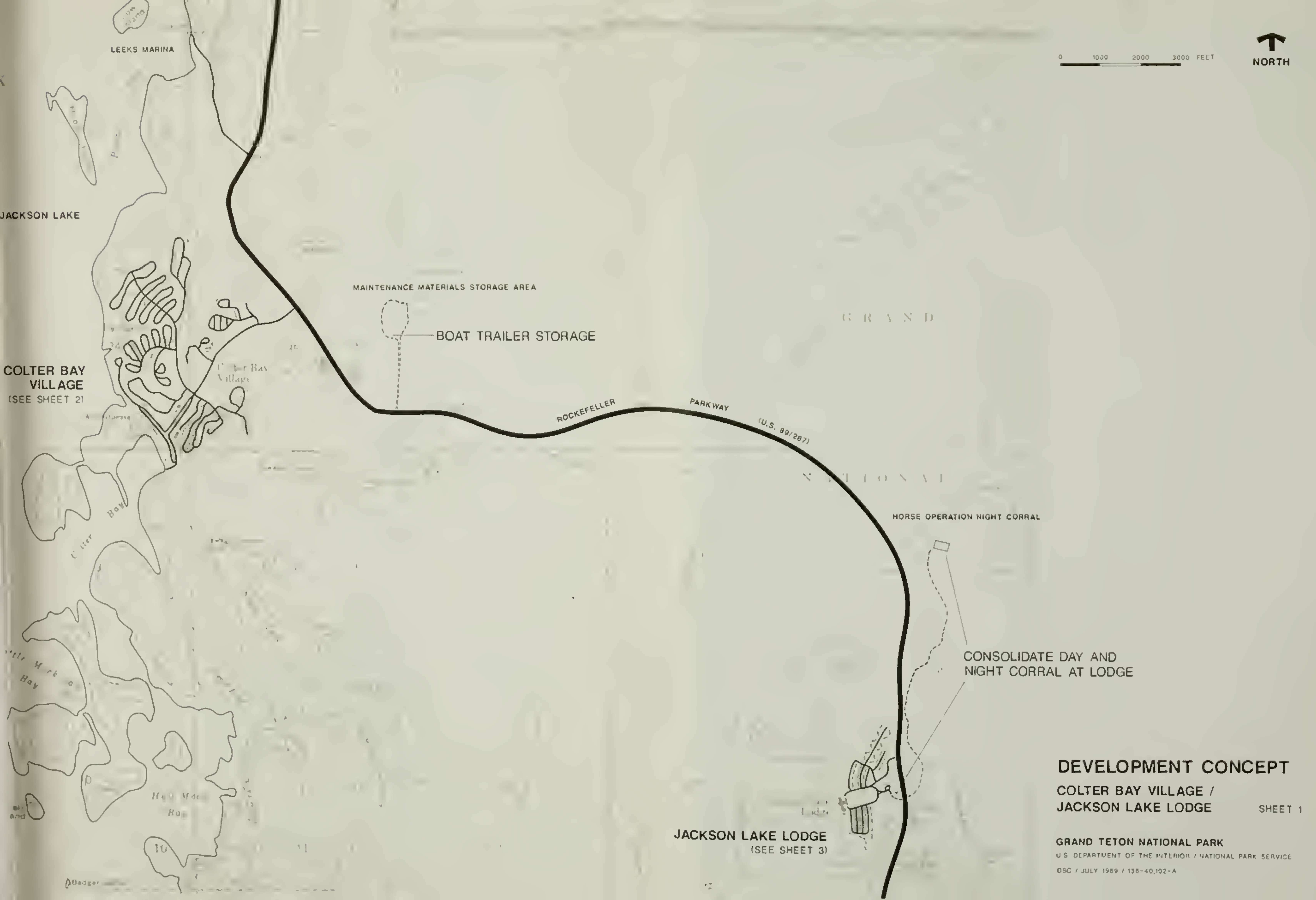
DEVELOPMENT CONCEPT

COLTER BAY VILLAGE / JACKSON LAKE LODGE

SHEET 1

GRAND TETON NATIONAL PARK
U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

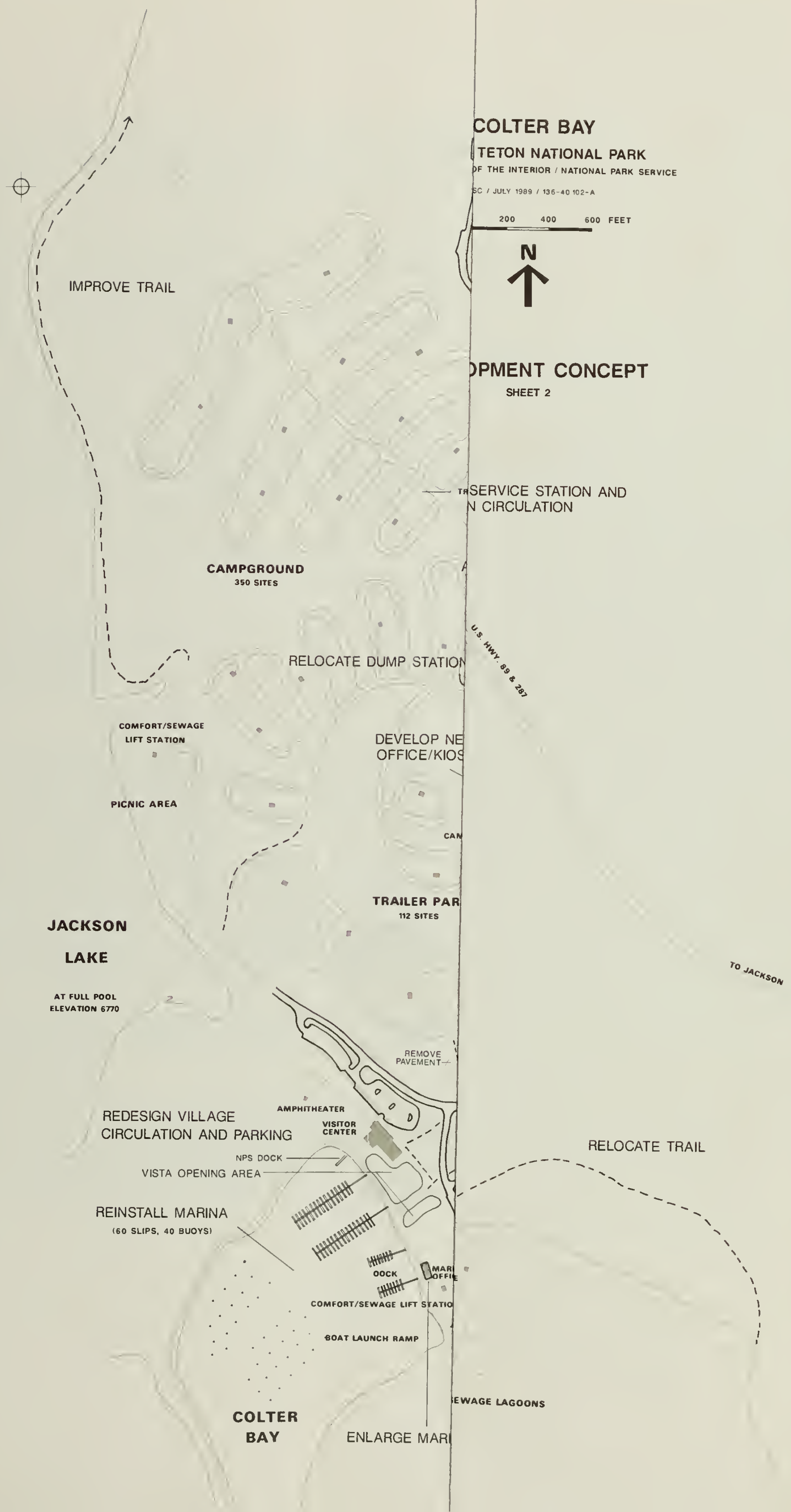
DSC / JULY 1989 / 136-40,102-A

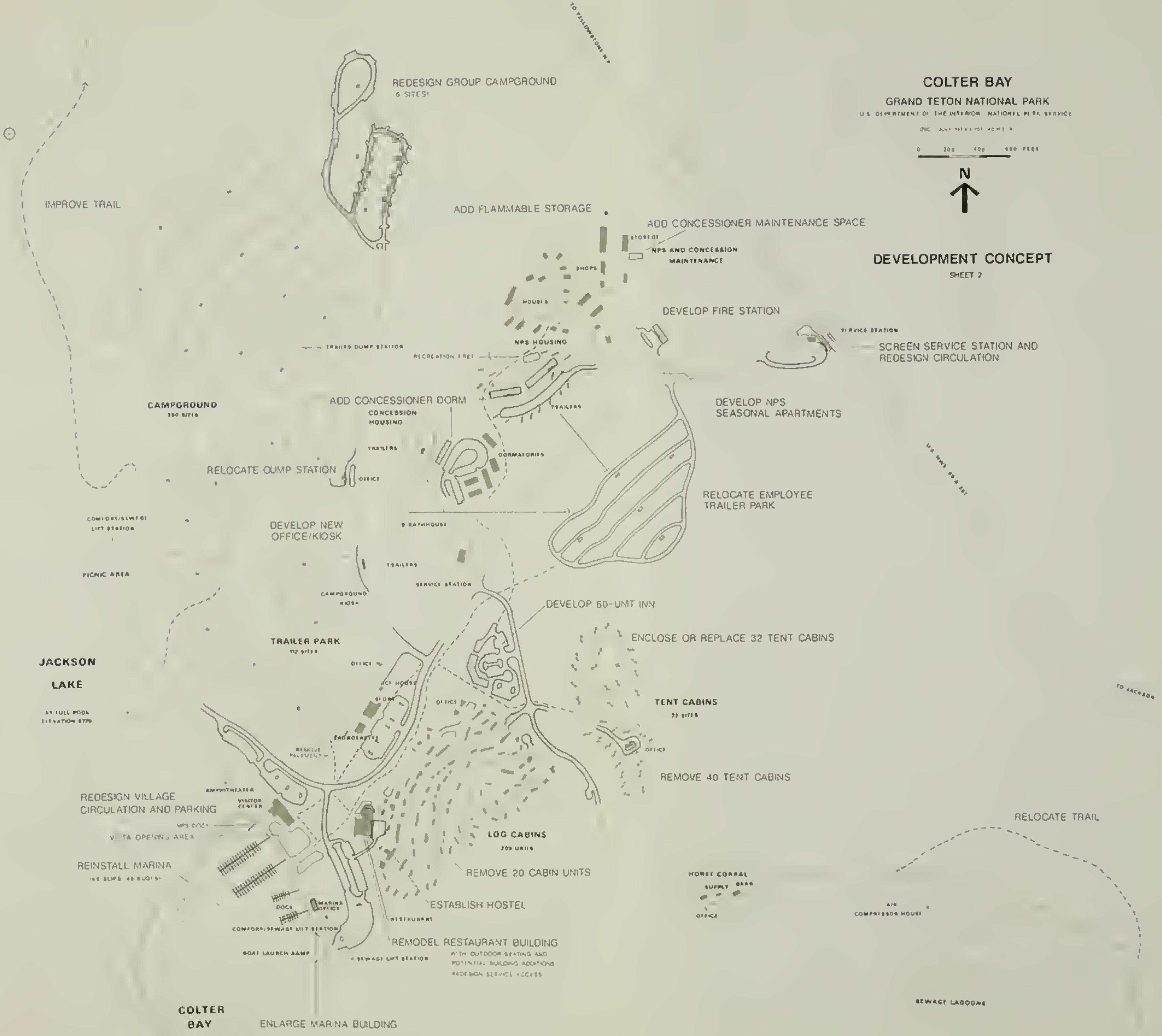


DEVELOPMENT CONCEPT

COLTER BAY VILLAGE /
JACKSON LAKE LODGE
SHEET 1

GRAND TETON NATIONAL PARK
U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE
DSC / JULY 1989 / 136-40,102-A


COLTER BAY
TETON NATIONAL PARK
F THE INTERIOR / NATIONAL PARK SERVICE
SC / JULY 1989 / 136-40 102-A
200
400
600 FEET
N
PMENT CONCEPT
SHEET 2
IMPROVE TRAIL
TRSERVICE STATION AND
N CIRCULATION
CAMPGROUND
350 SITES
U.S. HWY. 89 & 287
RELOCATE DUMP STATION
COMFORT/SEWAGE
LIFT STATION
DEVELOP NE
OFFICE/KIOS
PICNIC AREA
CAM
TRAILER PAR
112 SITES
JACKSON
LAKE
AT FULL POOL
ELEVATION 6770
TO JACKSON
REMOVE
PAVEMENT
AMPHITHEATER
REDESIGN VILLAGE
CIRCULATION AND PARKING
VISITOR
CENTER
NPS DOCK
VISTA OPENING AREA
RELOCATE TRAIL
REINSTALL MARINA
(60 SLIPS, 40 BUOYS)
DOCK
MARI
OFFIC
COMFORT/SEWAGE LIFT STATIO
BOAT LAUNCH RAMP
EWAGE LAGOONS
COLTER
BAY
ENLARGE MARI



COLTER BAY

GRAND TETON NATIONAL PARK

U.S. DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE

DEVELOPMENT CONCEPT

SHEET 2

also enhance vehicular circulation and reduce visitor orientation difficulties. The 4 four-way intersection near the store will be separated into two T-shaped intersections. The first intersection will provide access to a new visitor lodging facility (discussed below), and the other intersection will be at the existing campground road.

Currently, visitors must drive through the store parking area to get to the visitor center, amphitheater, restaurant, picnic area, and marina. The large T-shaped parking area inhibits traffic flow to these facilities. The problems will be corrected by providing a separate road leading directly to the visitor center, the logical first stop for visitors seeking information about the area. Access to the store and launderette will be off the new road about 450 feet south of the campground road intersection.

Access to and parking for the restaurant building and marina will also be improved. A separate road will lead from a T intersection near the visitor center to the marina parking and boat launch ramp and to separate parking for the restaurant building. Existing pavement will be extensively used for the proposed access road and parking areas. Based on a parking survey conducted during the summer of 1987, the plan will require the following parking spaces:

	Regular	**Oversize**	**Total**
Store/Launderette	90	10	100
Visitor Center/Amphitheater	90	10	100
Restaurant Building	62	8	70
Marina/Boat Ramp	70	30	100
			370

These capacities will accommodate current peak use, plus a 20 percent increase. Oversize vehicles include buses, cars with trailers, and recreational vehicles longer than 20 feet. The parking survey reported an average of only 7 percent oversize vehicles (excluding parking for the marina and boat ramp, which were out of service). However, the above figures provide at least 10 percent oversize spaces (30 percent for the marina/boat ramp) to accommodate peak use and changing vehicle use patterns. The marina/boat ramp parking capacity is based on interviews with park staff familiar with use patterns prior to the reservoir drawdown for dam repair. The marina parking will also serve as overflow restaurant parking during the evening when boating activities are at lower levels. The specified capacities will be refined during the design phase.

These road and parking improvements will be designed to accommodate snowplow operations and oversize vehicles, as needed, and storm water drainage will be addressed during the design process.

Additional walks will be provided to make pedestrian circulation in the village a pleasant and safe experience. Vista openings will be reestablished near the visitor center to restore views of Colter Bay and the Teton Range. This will remove trees that have grown up in the last 20-30 years, obstructing some prime views in the area.

LODGING

A 60-unit inn will be developed at a site north of the cabin area that was formerly used for the horse corral (see Development Concept map, sheet 2). This facility will replace 20 log cabin units and 40 tent cabins. The log cabins to be removed include eight units immediately behind the restaurant building and 12 deteriorated units in the log cabin area. The 40 tent cabins will be removed from the lower spur, which will be obliterated and restored. The remaining 32 tent cabins will be rehabilitated and enclosed. If it is more cost-effective to replace these units than rehabilitate and enclose them, the level of accommodation will remain the same (outdoor cooking space and no indoor plumbing), continuing the rustic accommodations opportunity with hard-sided facilities.

About 80 parking spaces will be provided to serve the inn and its restaurant. At least 10 percent of these will be oversize spaces to accommodate buses and other large vehicles. Registration for the cabins will be relocated to the inn, as will be the guest lounge for reading, writing, or small gatherings. The circulation and parking concept shown on the map is intended to facilitate access to the new check-in desk and keep parking spaces on the east side of the new facility to preserve views of the mountains from the inn. The existing guest lounge in one of the cabin buildings will be converted to a hostel. The cabin office will revert to lodging functions. The above changes will be accomplished within the existing Colter Bay lodging capacity.

FOOD SERVICE

A new fine dining restaurant and bar will be developed at the proposed inn. The existing restaurant building will provide fast-food service and family dining with a service bar. The existing barroom will be converted to overflow restaurant space, and the snack bar next to the village store will be removed. Following are the maximum capacities for the Colter Bay food service facilities:

Inn restaurant – 90 seats
Family restaurant – 220 seats
Fast-food restaurant – 80 seats (plus 80 outdoor seats)

The existing restaurant building will be remodeled or completely rebuilt to provide the family dining and fast-food service with an outdoor seating area. Building additions may be needed to upgrade the kitchen facilities and provide the necessary seating space identified above (see Development Concept map, sheet 2). Special consideration will be given to parking needs, signing, and landscape plantings during design to ensure that visitors can find this facility.

MARINA/BOAT TRAILER STORAGE

The marina building will be rehabilitated (or replaced) and enlarged (about 600 square feet) in its current location. A new dock will be added when the marina is reinstalled, and the number of slips will be increased by 20 to 60, with a corresponding decrease in buoys from 60 to 40. The floating marina pumpout station will be replaced and the gas pump will be reactivated. The NPS dock will be replaced with a larger facility to accommodate up to five boats. The boat ramp loop road and marina parking area will be redesigned to facilitate use by vehicles pulling boat trailers. This will permit more efficient short-term parking and access for cars with boat trailers. To retain approximate current use levels, the ramp will not be enlarged. This will divert any additional use to Leek's Marina where there is adequate boat ramp and parking capacity. Long-term boat trailer storage will be moved from the area across from the cabin registration office to the NPS maintenance materials storage area (Colter Bay dump) approximately 1 mile east of Colter Bay Village (see Development Concept map, sheet 1). The trailer storage area will continue to be managed by the Park Service. A simple system of posts or cable will be installed to allow users to secure their trailers with personal locks. The area will also serve the needs of other marinas in the park.

Structural improvements to the waterfront area, such as a bulkhead, may be considered in the future if proposed for operational reasons or visitor safety. No outdoor eating facility will be placed on the waterfront. Proposals will be evaluated for need and feasibility, and environmental compliance documentation will be completed prior to implementation.

SERVICE STATIONS

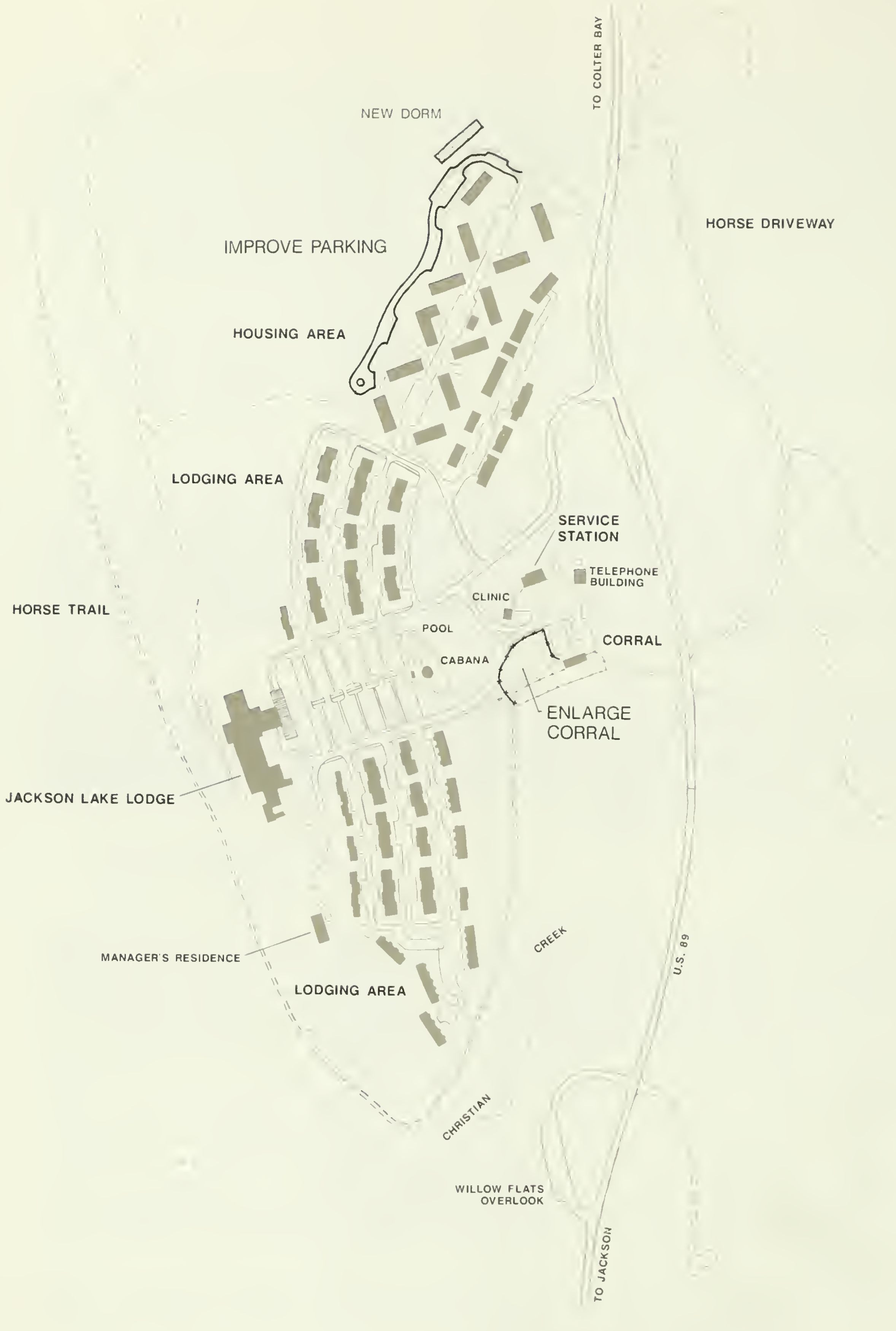
In the near future, the service stations at Colter Bay and Jackson Lake Lodge will be retained in their present locations. However, because there are three service stations in the developed areas and only two are needed to provide fuel and minor repair services, one station will eventually be closed. The decision on which station to eliminate will be made based on the life expectancy of each facility and the need to make major investments in the station. For example, if the underground fuel storage tanks need to be replaced, the operation of that station will be reconsidered.

Action will be taken to resolve several aesthetic and circulation problems at the Colter Bay station adjacent to the parkway. It will be better screened with plantings and earth mounds, the signing will be reduced in size, and the facade will be improved, all to reduce its visual intrusion from the parkway. Vehicular circulation will also be redesigned to eliminate direct access to the parkway, associated safety hazards, and adverse visual impacts (see Development Concept map, sheet 2).

HORSE CORRALS

There will be no change to the Colter Bay horse corral. The horse trail going east will be rerouted away from the sewage treatment lagoons. To remove the Jackson Lake Lodge horse driveway, reduce resource impacts, improve operation efficiency, and remove overnight horse corralling from grizzly bear habitat, the day and night corrals will be consolidated at the day corral. The day corral will be expanded but will not be any closer to the lodging facilities (see Development Concept map, sheets 1 and 3). Corral cleaning operations to remove horse manure will be improved. Because prevailing winds blow odors away from the lodge, visitor complaints should not increase significantly. The night corral site will be revegetated and restored. The corral expansion concept is shown on Development Concept map, sheet 3. The corral may be expanded without affecting the service station or medical clinic. However, during detailed design for the corral, this concept will be refined, and the future use of the service station and location of the medical clinic will be reevaluated. A single horse/hiking trail will be delineated along the existing braided stock driveway.

Some conflict between horse riding groups and hikers occurs, as evidenced by hiker complaints to NPS personnel. There is also some feeling among park staff that conflicts



DEVELOPMENT CONCEPT
JACKSON LAKE LODGE

SHEET 3

GRAND TETON NATIONAL PARK
U.S. DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / JULY 1989 / 136 40102-A

occur between both user groups and wildlife in the Hermitage Point/Willow Flats and Christian Pond areas. These conflicts are not well understood, and there is a lack of systematically collected data. There are also no wildlife baseline data predating the visitor use concentrations that followed the Colter Bay and Jackson Lake Lodge development. A detailed study should be performed to systematically collect and interpret data and make management recommendations to resolve horse/hiker/wildlife conflicts in what is the most extensive wetland area, and probably the most productive and diverse wildlife habitat, in the park.

CONCESSION MERCHANDISING/STORAGE/MAINTENANCE SPACE

About 5,500 square feet of space will be developed by the concessioner for merchandise offices and work area, storage, and maintenance operations next to the existing concession storage building in the Colter Bay maintenance area. This will be an addition to the existing building or a separate adjacent structure (see Development Concept map, sheet 2). The existing crowded merchandising area in Jackson Lake Lodge will be converted to office and storage space for the concessioner.

CAMPGROUNDS

To improve campground operations and decrease congestion, the entrance station will be replaced with a combination office/kiosk (about 300 square feet). The entrance road will be widened to provide two lanes of traffic on both sides of the entrance station at all times, and employee parking will be provided nearby. The existing "office" (employee quarters) will be removed, and the trailer dump station will be relocated to the former office site (see Development Concept Map, sheet 2). The group campground will be redesigned to provide six group sites. The remainder of the group campground will be converted back to standard campsites. This will allow other campsites to be removed or placed on a site recovery program. However, the total number of campsites will be kept at the current 350-site capacity.

A lighted walkway will be developed between the campground and the amphitheater to reduce the number of informal trails and increase visitor safety. Another informal trail along the lakeshore near the campground will be redesigned and formally designated as a hiking trail to reduce resource impacts, improve safety, and enhance hiking opportunities in the area.

There will be no change in the concessioner-operated RV campground, and no action regarding winter camping. Winter camping at Colter Bay decreased when a fee system was implemented, and the small amount of use does not justify a significant change.

RANGER OFFICE/FIRE STATION

A new ranger office/fire station (about 5,000 square feet) will be developed near the entrance to the maintenance area (see Development Concept map, sheet 2). This facility will (1) consolidate ranger operations under one roof, (2) provide needed garage space for boats, vehicles, and equipment, and (3) provide sufficient office and storage space for administrative needs. Vehicle storage will include fire trucks, an ambulance, patrol vehicles, and patrol boats. A wildland/structural fire equipment storage area will be provided, and ranger offices will be incorporated in the facility.

HOUSING AREAS

Twenty-five two-bedroom government-owned trailers will be replaced with apartments (with a total of about 50 bedrooms) for seasonal employees. These apartments will be provided in one or two single-story structures, and the facility will include a recreation room. The apartments will average two bedrooms per unit, but will be designed to provide some flexibility in the number of bedrooms per unit to adapt to changing work force conditions.

The trailer pads provided for seasonal employees bringing their own units will be relocated to a new site east of the existing employee housing area (see Development Concept map, sheet 2). These sites encourage older employees, such as retirees, to work in the area. Retirees are a growing segment of the seasonal work force and are generally more reliable, more skilled, and more flexible about working shoulder seasons than the traditional college-age employee. Older employees are not inclined to live in dormitories and often prefer to bring in their own trailers or RVs to reduce their housing costs and reliance on the concessioner and the Park Service to provide quality housing and food service. (Trailer/RV sites are less expensive to build and maintain than apartments.) The new area will have up to 150 sites, 120 for concession employees and 30 for NPS employees. Additional sites are proposed to accommodate the trend in older employees, relieve overcrowding at the existing dorms, allow more employees to convert from a six-day workweek to a five-day workweek, and serve the reestablished marina, the proposed inn, and its new restaurant.

A new site is proposed for the trailer park so that 77 high-density concession employee trailer sites can be removed from the existing ridgetop area (where the facility is a visual intrusion) and 22 spaces can be removed from the existing NPS trailer area (where the proposed apartments will be constructed). The new site is screened from visitor use areas. The area has gentle slopes (less than 10 percent) and soils appropriate for the intended use. Access will be provided off the Colter Bay entrance road opposite the maintenance area road. The trailer park will be set back about 300 feet from the Colter Bay entrance road to provide adequate vegetation screening, and about 400 feet from the tent cabin area to provide adequate screening and noise buffering. Site densities will be similar to those of the existing NPS trailer area (about 15 units per acre), but substantially less than the existing concession employee trailer park. There will be no government-owned or concessioner-owned trailers at this facility. All trailers or RVs will be brought in by the employees at the beginning of the season and removed at the end of the season. Paths will be developed between all housing areas and the work areas to facilitate employees walking to work.

A new two-story, 60-bed dorm will be developed at Colter Bay by the concessioner to permit converting seasonal employees to a 40-hour workweek and to adequately serve existing and proposed facilities in the area. A new Jackson Lake Lodge dorm was recently developed under a separately approved plan to relieve a major overcrowding problem in the existing dorms at the lodge area. Landscaping and earth berms will screen this new dorm from the parkway. The informal parking areas behind the existing dorms will be formalized to define the designated parking (see Development Concept map, sheet 3).

MAINTENANCE AREA

A flammable-storage building (about 500 square feet) will be installed in the maintenance area to improve safety. When the new fire station discussed above is developed, the existing fire station in the maintenance area will be converted to maintenance functions.

UTILITIES

Basic Needs

This section describes several basic improvements for the area's utility systems necessary to support the existing facilities at Colter Bay and Jackson Lake Lodge as they are currently being used. Additional utilities for proposed facilities are described in the next section.

As stated above, the existing utility system was designed and constructed for seasonal use only. The Colter Bay maintenance area, a portion of the housing area, and the visitor center offices are now used year-round. The utilities have been used during the extended season only by intensive operation and maintenance procedures that are both expensive and time-consuming. Several components of the water supply and wastewater treatment system have been upgraded to provide reliable year-round service. The following additional components will be upgraded to meet basic needs regardless of whether other improvements are made to the area.

Water System. Spalling concrete will be repaired on the Colter Bay water storage tank. Water use at the Jackson Lake Lodge area averages 290,000 gpd during the peak use month; a significant portion is for landscape irrigation. The existing 500,000 gallon water storage tank serving the lodge area is not adequate based on standard water storage criteria. A detailed water supply alternatives study is beyond the scope of this plan. An analysis will be done to evaluate several water supply options, which might include reducing irrigation needs by replacing bluegrass lawn areas with drought-tolerant plants, developing a nonpotable water source for irrigation, or installing additional storage capacity (about 300,000 gallons) to meet storage criteria. The preliminary cost estimate listed in the appendix is for an additional storage tank adjacent to the existing tank.

To reduce water line freeze-ups at Colter Bay, the main 10-inch diameter line paralleling the access road from the parkway to the visitor center (about 5,000 feet) will be replaced. This water line is the main artery for the entire Colter Bay development and is critical for visitor center and housing area fire protection on a year-round basis. The water line will be insulated and buried to a depth below the normal frost line. During winter this will save approximately 70,000 gpd currently bled into Jackson Lake to keep the main pipe from freezing.

At Jackson Lake Lodge about 1,200 feet of 10-inch water line will be insulated and buried below normal frost line for the same purpose, saving about 35,000 gpd (which goes into the sewage disposal system). Water lines in the year-round NPS housing area at Colter Bay will also be insulated and buried below frost line. This will save another 30,000 gpd of water that currently goes into the sewage disposal system.

Wastewater System. To reduce inflow/infiltration problems in the Colter Bay sewer lines, approximately 15,000 feet will be slip-lined. Seventy manholes will be repaired to keep runoff water from entering the collection system. These improvements will reduce the hydraulic surcharge on the wastewater treatment facilities during wet periods. One lift station in the campground will be replaced with a new submersible lift station to improve system reliability. Emergency power equipment or overflow tanks will also be installed at both campground lift stations. A grease trap will be installed on the restaurant building discharge line to eliminate the severe grease buildup in the collection lines and main lift station. Sewer lines crossing beneath plowed roads will be insulated to prevent freeze-up.

The wastewater treatment and disposal facilities are adequate if the inflow/infiltration and discharged "bleeder" water is eliminated from the collection system. The plugged perforated air tubing will be replaced in the sewage lagoons.

Emergency Power Generation. Power outages are usually caused by external supply or transmission problems. Winter outages occur almost every year, with durations lasting from several hours to days and, in one case, even weeks. Rather than install a large, costly generator serving the entire development, one or two smaller generators will be installed to serve critical facilities such as the fire station and portions of the maintenance area.

Fuel Storage. Underground fuel tanks that are used at the marina, maintenance area, and service stations will comply with the Environmental Protection Agency's underground storage tank regulations (40 CFR Part 280).

Additional Utilities

This section describes additional utilities that will be needed to support new or relocated facilities recommended in the plan. All new utility lines will be placed underground.

Lodging. Water, sewer, electric, and telephone services will be provided for the proposed 60-unit inn. The water service will be a looped system to facilitate adequate fire flows. This service will tap the main water line serving the Colter Bay area. The connection will be insulated and buried below frost depth to accommodate shoulder season use. A sewer line connection will be made from the inn to the existing sewer line near the visitor center. The new line will also be buried and insulated at road crossings to permit operation during the shoulder season. A grease trap will be installed to serve the proposed restaurant at the inn. Connections will be made to the nearby existing electrical and telephone facilities.

Trailer Dump Station. The relocated campground trailer dump station will be connected to existing utilities at the new site.

Campground Kiosk/Office. The existing entrance station is served by all utilities except sewer. Approximately 600 feet of gravity sewer line will be installed to provide a small restroom for park staff in the proposed station.

Ranger Office/Fire Station. The proposed ranger office/fire station site has all utilities nearby except sewer. A small lift station and force main will be constructed to pump wastewater into the gravity sewer line that serves the NPS housing area. The large septic tank that serves the maintenance area will serve as an emergency overflow for the lift station. Wastewater from the maintenance shops will also be pumped by this proposed lift station to the main sewer line, thus connecting the area to the central collection and disposal system.

Housing Areas. The water distribution system for the proposed NPS apartments will be provided with adequately sized lines for fire protection. They will be insulated and buried below the frost line. A short section of water line should also be connected with the permanent NPS housing area water line to improve flow characteristics. Sewer lines will be replaced and insulated, and the electrical distribution system and telephone system will be modified to conform to the new building configurations.

Existing water lines at the Colter Bay dorms are buried very near the surface and can be used in summer only. If one or more dorms are used during the shoulder season, then the utilities will need to be replaced. At a minimum, the 6-inch water main in the dorm area should to be connected to the 8-inch line proposed for the NPS housing area to form a loop that will improve flows for fire-fighting purposes.

New site utilities will be needed for the proposed employee trailer park. An 8-inch water line will be installed and connected to the 10-inch main line. The water lines in the trailer area will be looped and sloped to drain. All water lines will be buried at sufficient depth for potential shoulder season operation. An 8-inch sewer line will also be installed to connect the trailer area to the sewage collection system. The main lift station will be upgraded to handle increased flows from the trailer park and proposed inn. The collection system in the trailer park will be a conventional gravity system serving individual trailer sites and shower buildings. Existing three-phase electrical power is available adjacent to the site. A secondary electrical distribution system, including transformers and meters, will be installed in the trailer area. Telephone service also exists nearby. Phone service will not be provided to each site, but pay phones will be distributed throughout the trailer area.

IMPLEMENTATION COSTS AND PRIORITIES

The proposed improvements will be implemented as government and concessioner funds become available. It is critical that public and private funding be coordinated so that site improvements are appropriately sequenced with building construction. A summary of estimated costs and priorities is shown in table 1. For a detailed list and breakdown of costs, see appendix B. The annual NPS operation costs will not be significantly affected by the plan. Although there will be some increase in maintenance needs for new facilities, such as the proposed fire station, there will be decreases from improvements to the roads, utilities, and other facilities in the area. The concessioner will be responsible for the operation and maintenance of new concession facilities. The total gross development costs will be about $7.9 millon for the government. Concessioner construction costs will total about $5.5 millon (see appendix B).

Table 1: Cost Estimate Summary

Development Project	Responsibility	Priority/ Phase	Gross Cost
Lodging	GTLC	4	$2,307,000
	NPS	4	393,000
Food Service	GTLC	3	753,000
	NPS	3	8,000
Marina	GTLC	1	121,000
Orientation Signing	NPS	2	2,000
Campground	NPS	3	335,000
Service Stations	NPS	4	60,000
Ranger Office/Fire Station	NPS	2	822,000
NPS Housing	NPS	2	3,055,000
Concessioner Housing	GTLC	1-4	1,954,000
	NPS	1-4	336,000
NPS Maintenance Area	NPS	1	138,000
Concessioner Maintenance	GTLC	2	400,000
Circulation and Parking	NPS	2	648,000
Horse Corrals	GTLC	2	9,000
	NPS	2	83,000
Basic Utilities	NPS	1	2,033,000

Note: NPS policy requires that, to the extent it is economically feasible, the concessioner shall undertake all costs of its own facilities and utilities, roads, parking, and similar infrastructure. The responsibility for funding shown above is tentative and subject to further negotiations between Grand Teton Lodge Company (GTLC) and the Park Service.

CONSULTATION

The Park Service consulted with the following agencies, organizations, and individuals during preparation of this plan:

- Advisory Council on Historic Preservation
- Bureau of Reclamation
- Fish and Wildlife Service
- Grand Teton Lodge Company
- State Historic Preservation Office

The *Draft Development Concept Plan/Environmental Assessment* (NPS 1988) was sent to selected agencies, interested organizations, and individuals for review and comment. A public meeting was also held in Jackson to accept comments and answer questions during the public review period. A "Finding of No Significant Impact" was approved for the plan in July 1989.

APPENDIX A: COLTER BAY VILLAGE DESIGN GUIDELINES

The similarity among existing design elements at Colter Bay Village can be defined, and a desirable design character for new construction established. By respecting the following design guidelines, new development should be compatible with the existing natural and built environment. However, these guidelines do not dictate a rigid design style, so the potential for contemporary new design is not stifled. These guidelines should be used to prepare and evaluate facility designs for Colter Bay. They may also be applied to new development at Jackson Lake Lodge where appropriate. The guidelines are most critical for facilities in or visible from public use areas, but they also should be applied to other administrative buildings where practicable.

LANDSCAPE ELEMENTS

Developed area roads, parking areas, walkways, vegetation, and street furniture should be effective links between the natural and built environment by reflecting patterns of the scenic quality that enhance the form, scale, and textures of facilities into a unified developed area image. The following sections provide guidelines for designing the primary landscape elements in the village.

Roads

A major modification to the village entrance road is specified in the plan. Careful design will be needed to accomplish the intended purpose of guiding the driver through the village while focusing on splendid mountain views, with peripheral distractions screened from view. An appropriate visual sequence for the modified alignment should include vistas of the distant scenic landscape (the Teton Range); a major recreation opportunity (the marina); the primary destination facility (the visitor center); and parking. This sequence will be accomplished without the need for a stop sign for through traffic from the highway junction to the visitor center. The realigned road in the village should have 11-foot paved travel lanes and 4-foot shoulders (2-foot paved, 2-foot stabilized native grass) to accommodate anticipated traffic volumes, vehicle types, and some bicycle use.

Parking

The new large parking areas should be arched or curvilinear to reduce their apparent size, where feasible, and separated from through traffic as shown in the plan. Because large parking bays are needed, vegetated parking islands should be introduced to link the natural and built environment. Where feasible, parking islands should be designed perpendicular to the building or main walkway they serve, and they should be wide enough to support adequate screening vegetation. To lessen the impact of trampling by visitors, islands can could also be "hardened" by

increasing the planting grade to the soil's angle of repose

incorporating natural barriers, e.g., rocks and dense plant materials

using utilize subsurface irrigation techniques and soil treatments to combat compaction

raising the curb height from the standard six 6 inches

Vegetation

Only trees grown or transplanted from the park's local gene pool should be considered for use in the village. Subalpine fir, blue spruce, and Engelmann spruce are best for screening and should be used to hide the new employee trailer area and the general store parking area from the village road.

Quaking aspen, because of its hardiness, would work well on parking islands and as accents for entryways. Lodgepole pine, because it cannot withstand strong winds, should be used sparingly in and around the built environment. Native understory shrubs and grasses associated with these trees should always be incorporated into any planting plan.

Any new planting plan should not locate trees closer than 1/2 to 3/4 the distance of their ultimate branch spread to a road. Planting edges should be feathered to reflect the natural vegetation patterns found in the local environs. Because roadside encroachment by new growth may be inevitable, a transplant program of young, unwanted growth should be suggested as a standard maintenance procedure. Trees denuded by snowloading should be removed.

Signs

Any proposed new signs should be reviewed by the park's sign committee. A review of existing signs in the Colter Bay area should be completed prior to the installation of new signs. Considerations for new signs include the following:

> All signs should be unified in character and relate to the total design theme of other park facilities.
>
> Sign sequence should be planned, and a minimum number of signs should be used.
>
> Materials and colors should be consistent with existing signs.
>
> Road signs should offer brief, legible, sequentially correct information that is easily read from a vehicle traveling at the road's speed limit.
>
> Road signs should be located on tangents, not curves, if feasible.
>
> Vegetation should not obscure any part of a sign's text. However, vegetation and other natural materials (rocks, berms, etc.) may be used to focus a driver's attention on the sign and to screen adjacent undesirable and distracting elements.

Vista Clearing

The key vistas near the visitor center should be opened up by selectively clearing trees to enhance the visitor's understanding of the natural landscape and appreciation of the superior scenic quality. Vista clearings should be done under the scrutiny of the park landscape architect.

Several criteria should be considered when clearing a vista:

> The key view locations from roads, trails, decks, and the limits of necessary vistas should be established.
>
> The area to be cleared should be looked at not only from the critical viewpoint, but also back to the viewpoint. This is important because some vegetation screening may be necessary to block undesirable elements in the viewpoint area (e.g., parked cars and utility areas).
>
> All trees and shrubs do not necessarily have to be removed. A representative diversity of tree heights and species should be maintained in the vista clearing behind the visitor center. Vegetation under a specified viewing height should be left alone (visitor center deck views can withstand a few taller trees). Visibility should be checked every five years.

An abrupt vista edge against tall trees should be avoided. A soft, graduated blending of clearing and forest should be used.

Housing Areas

The housing areas should be designed to encourage a sense of community among residents. Walkways should be incorporated to encourage employees to walk to work rather than drive. The location of a new concessioner dorm should complement the strong frame established by the other dorms. The parking area needed for the new dorm cannot be absorbed into the current number of spaces and should be developed nearby in a screened area. Landscaping for the new dorm should offer a smooth transition from the parking area to community spaces to semi-private entry ways. The community spaces should offer small areas for employees to sit and relax in small groups. Vegetation in and around the community spaces and entryways should reflect the local natural environment, provide shade where needed, and soften the appearance of the dorm.

Walkways

New pedestrian walkways should be spatially distinct from vehicular circulation and integrated into the village and marina form. The walkways and paths should invite the visitor into well-defined use areas through a logical sequence of spatial experiences and views consistent with safe walking while allowing nature to dominate where feasible. Edges of use areas should be well defined. Parking islands and medians should be designed to discourage trampling by pedestrians. Exterior public spaces, especially spaces adjacent to the entry of the visitor center, store, laundry, and restaurants, should be distinct spatial experiences and offer sitting areas, drinking fountains, and other amenities to invite the visitor to sit, relax, and enjoy the blend of the built and natural environment.

ARCHITECTURAL ELEMENTS

Although the existing Colter Bay structures do not reflect one distinct architectural style, there are some unifying characteristics. In general, the structures are gable-roofed, single-story frame buildings. They generally have wood exteriors with a brown stained or painted finish. There are some exceptions, but most structures are unobtrusive and blend effectively with the natural surroundings. The architectural consistency was developed consciously and partially out of necessity.

Site

New buildings should be sited so that existing significant views or vistas are preserved. For example, a structure should be placed at the edge of a clearing rather than in a clearing. New structures should take advantage of available views, but also consider sight lines back to the structure. Placing new construction between an established or potential approach and a significant resource should be avoided. New buildings should be sited to preserve views from the existing structures. Existing natural vegetation should be used to screen buildings, especially any unsightly service areas.

Mass

Existing Colter Bay buildings have a horizontal massing. New structures should be low profile, consistent with the existing architectural character. Single-story structures are generally preferred. Two stories are acceptable in areas where other buildings are two stories (e.g., concession employee dorms), or where site constraints dictate multistories, but a horizontal mass should still be maintained. Roofs should have a moderate pitch and gable design. Steeply pitched or flat roofs should be avoided for aesthetic and functional reasons. Gable roofs are preferred to shed heavy snow and because the sloping shape reflects the surrounding trees.

Rhythm

Rhythm is created by alternating solids and voids in the structure. All buildings, in their simplest form, are a pattern of solids (walls) and voids (windows and doors). To be compatible with the existing built environment, a rhythm similar to the existing construction should be repeated in any new buildings.

Texture

Different building materials have different textures, both visual and tactile. Stone and wood have natural textures; however, wood is a warm texture and stone is cool. The difference is even more distinct if the wood is rough sawn and the stone is polished. Natural textures should be used in any new construction at Colter Bay; rough wood and stone are preferred. Brick masonry, stucco, and aluminum siding should be avoided, especially for structures exposed to public view. Excessive smooth textures should be avoided in any new construction, with one exception. Glass, when used properly, can open the structure up to the surrounding environment, thereby creating a more natural feel. Metal, asphalt, and wood would be are acceptable roofing materials.

Color

Colors are a critical element for compatible design. They should be selected to blend with the existing structures and the natural surroundings. Neutral earth tones similar to existing brown colors or unfinished natural surfaces should be used. Roof materials should have a medium to dark brown nonreflective finish.

APPENDIX B: DEVELOPMENT COST ESTIMATE DETAILS

Item	Proposed Development	Cost (in thousands)	
		GTLC	NPS
Lodging			
	Construct 60-unit inn, 30,180 sq ft	2,000	
	Paved parking, entrance road, 6,533 sq yd		172
	Water line, 8 in., 900 lin ft; 1 meter, 3 hydrants		81
	Sewer line, 8 in., 1,700 lin ft; 4 manholes		89
	Electric cable, underground 400 lin ft; 1 meter		9
	Telephone, buried conduit		2
	Enclose 32 tent cabins, 384 sq ft ea.	246	
	Remove 40 tent cabins, 384 sq ft ea.	10	
	Convert guest lounge to hostel, 1,725 sq ft	43	
	Remove 20 cabins, 384 sq ft ea.	8	
	Obliterate pavement, restore site, 3,911 sq yd		35
	Paved road, 578 sq yd		5
	Subtotal	**2,307**	**393**
Food Service			
	Inn restaurant, 90-seat, 3,000 sq ft	450	
	Grease trap		8
	Remodel restaurant building, 7,570 sq ft	303	
	Subtotal	**753**	**8**
Marina			
	Enlarge marina building, 600 sq ft	54	
	Boat slips, 20	30	
	Relocate 40 slips, 40 buoys	16	
	Boat pumpout	21	
	Subtotal	**121**	
Campgrounds			
	Office/kiosk, 300 sq ft		70
	Pavement, 356 sq yd		12
	Trailer dump station		46
	Obliterate dump station, restore site, 89 sq yd		8
	Paved parking, entrance road, 267 sq yd		9
	Obliterate pavement, restore site, 844 sq yd		8
	Remove house, 2,250 sq ft		7
	Sewer line, 6 in., 600 lin ft; 2 manholes		28
	Connections for water, sewer, electric, and telephone		49
	Redesign group campground; paved parking, 2,667 sq yd		88
	Obliterate pavement, restore site, 1,111 sq yd		10
	Subtotal		**335**
Information/Orientation			
	Improve signing		2
	Subtotal		**2**

Service Stations		
Redesign parkway station circulation 1,733 sq yd pavement		56
Obliterate pavement, restore site, 444 sq yd		4
Subtotal		**60**
Ranger Office/Fire Station		
Office/fire station, 6,250 sq ft		736
Paved parking, entrance, 933 sq yd		30
Sewer lift station, forcemain, 4 in., 300 lin ft		14
Sewer line, 6 in., 350 lin ft		16
Connections for water, sewer, electric, and telephone		26
Subtotal		**822**
NPS Housing		
Apartments, one-story with rec hall 23,500 sq ft		2,155
Paved parking and entrance road, 2,089 sq yd		68
Obliterate pavement, restore site, 5,288 sq yd		48
Water line, 8 in., 750 lin ft; fire hydrants (3)		59
Water line, 6 in., 200 lin ft		10
Sewer line, 6 in., 250 lin ft insulated, manholes (3)		20
Connections for water, sewer, electrical, and telephone		26
Owner-occupied trailer spaces (30), complete		472
Bathhouse, 750 sq ft		197
Subtotal		**3,055**
Concessioner Housing		
Dorm, two-story, 9,000 sq ft total	720	
Paved parking, 1,911 sq yd		63
Water line, 8 in., 400 lin ft		18
Connections for water, sewer, telephone, and electric		26
Trailer area, 120 sites, complete	1,200	
Connection to water, sewer, electrical, and telephone	34	
Obliterate 77 trailer sites and restore site, 6,444 sq yd		59
Paved parking and access road, 5,199 sq yd (lodge dorms)		170
Subtotal	**1,954**	**336**
NPS Maintenance Area		
Flammable storage building, 500 sq ft		79
Remodel fire station to maintenance building 1,500 sq ft		59
Subtotal		**138**
Concessioner Maintenance Area		
Merchandising storage building, 5,500 sq ft	400	
Subtotal	**400**	

Circulation/Parking		
Village parking, access, 12,932 sq yd		423
Obliterate pavement, restore sites, 15,554 sq yd		143
Paved walks (7,520 ft x 5 ft) and trails (9,200 ft x 2 ft)		82
Subtotal		648
Horse Corrals		
Widen paved road to corral, 889 sq yd		29
Relocate horse trail away from sewage lagoons, 3,200 ft x 2 ft		4
Jackson Lake Lodge night corral – remove and restore site, 8,310 sq yd		42
Lodge corral – paved bus parking, 222 sq yd		8
Fence, 490 lin ft at corral	9	
Subtotal	9	83
Utilities		
Rehabilitate structural interior of 500,000-gal. water tank		98
Water line, 10 in. - (5,000 lin ft) and 8 in. - (2,500 lin ft) insulated		721
Master meters (4), services (27)		77
Sewer line, insulate 1,110 lin ft; slipline 15,000 lin ft		283
Lift station in campground with generator; manhole repair (70)		84
Add grease trap, relocate sewer line		27
Air tubing in sewage lagoon, 22,190 lin ft		58
Generator, emergency power		35
Jackson Lake Lodge water line 10 in. - (1,200 lin ft) insulated		126
Water storage tank, concrete buried, 300,000 gallon		524
Subtotal		2,033
Concessioner Grand Total	5,544	
NPS Grand Total		7,893

Notes:
GTLC = Grand Teton Lodge Company
Actions refer to Colter Bay except as noted.
Cost estimates for NPS development are class "C" in gross dollars, which includes construction costs, construction supervision, and contingencies (construction cost x 1.31).
Funding responsibilities (GTLC vs. NPS) are tentative and subject to further negotiations.

APPENDIX C: ALTERNATIVES CONSIDERED IN THE ENVIRONMENTAL ASSESSMENT*

	Proposal	Alternative A	Alternative B	Alternative C
Concept	Improve/redesign	Reduce facilities	No action	Year-round use/major redesign
Winter Use	No action	Eliminate snowplaning and winter camping	No action	Expand winter use at Colter Bay (cross-country skiing, ice fishing, camping, lodging, food service, interpretation, and sight-seeing)
Lodging	Develop 60-unit inn across from cabin; remove 40 tent cabins, enclose 32; remove 20 log cabin units; convert guest lounge to hostel	Remove 21 log cabin units; remove 40 tent cabins, rehab 32	Rehab tent cabins	Develop 100-unit year-round inn and remove 72 tent cabins; remove 30 log cabin units; convert guest lounge to hostel
Food Service	Develop new fine dining restaurant with inn; remodel existing restaurant building for fast food and family dining	Update grill facilities for fast-food service	No action	Develop new fast-food restaurant between launderette and visitor center; new restaurant with inn; convert grill to guest lounge, bar, and offices
Marina	Rehab marina building (enlarge 600 sq ft), install 60 slips, 40 buoys; add new dock; replace NPS dock	Consolidate at Leek's Marina	Reinstate at Colter Bay (40 slips, 60 buoys)	Same as proposal plus NPS boathouse

*This table is from the *Draft Development Concept Plan/Environmental Assessment* (NPS 1988).

Campgrounds				
Summer Campground	Develop new office/kiosk; relocate trailer dump station; redesign group campground (6 sites)	Convert to self-serve, reduce sites, and remove trailer dump station at NPS campground	No action	Develop new office/ kiosk; expand RV campground and reduce NPS campground by 40 sites; develop 2 trailer dump stations; redesign group campground (12 sites)
Winter Campground	No action	Discontinue winter camping	No action	Open portion of RV campground
Information/Orientation	Improve signing	No action	No action	Develop year-round contact station near entrance
Long-term Boat Trailer Storage	Move to maintenance materials storage area	Discontinue long-term trailer storage	No action	Move to maintenance materials storage area
Service Stations	Redesign circulation and screen parkway station; close Jackson Lake Lodge station	Remove parkway station	No action	Redesign circulation at parkway station; open village station in winter
Ranger Office/Fire Station	Develop new station near maintenance area	No action	No action	Adapt two NPS maintenance buildings to be vacated (see below)
NPS Housing	Replace government trailers with apartments; provide 30 owner-occupied trailer spaces east of existing housing area	Replace government trailers with apartments; provide 22 owner-occupied trailer spaces at existing site	No action	Replace trailers with apartments; provide 30 owner-occupied trailer spaces and community center near existing housing area
Concessioner Housing	Relocate 77 trailer sites and provide 43 additional sites east of existing housing area; develop new dorm	Provide additional housing outside the park	No action	Redesign and consolidate concessioner trailer sites with NPS sites; develop new dorm

NPS Maintenance Area	Develop flammable storage building; convert fire station to maintenance use	Develop flammable storage building	No action	Move to maintenance material storage area
Concessioner Maintenance Area	Expand next to existing building in maintenance area	Use laundry at Jackson Lake Lodge for merchandising space	No action	Turn over NPS "roads" maintenance building to concessioner
Circulation/Roads/ Walks/Parking	Improve circulation; redesign using existing pavement where feasible	Reduce parking; improve circulation with minimum change to existing pavement	No action	Improve circulation; major redesign
Horse Corrals	Consolidate Jackson Lake Lodge day and night corrals at day corral site	Remove horse operations from Colter Bay; fence and/or surface horse driveway at Jackson Lake Lodge	No development action; potential operational changes	Consolidate Colter Bay and Jackson Lake Lodge operations at Jackson Lake Lodge night corral

---

Note: Actions refer to Colter Bay Village except as specified for Jackson Lake Lodge.

SELECTED REFERENCES

BUREAU OF RECLAMATION

1987 Memorandum from Acting Regional Director, Pacific Northwest Region, Bureau of Reclamation, Boise, to Assistant Manager, Central Team, Denver Service Center, National Park Service, dated May 5, 1987.

BUREAU OF RECLAMATION/NATIONAL PARK SERVICE, U.S. DEPARTMENT OF INTERIOR

1984 *Final Environmental Impact Statement, Jackson Lake Safety of Dams Project Wyoming – Idaho*. Boise, ID and Denver, CO.

FISH AND WILDLIFE SERVICE, U.S. DEPARTMENT OF INTERIOR

1982 *Grizzly Bear Recovery Plan*. Denver, CO.

INTERAGENCY GRIZZLY BEAR COMMITTEE, U.S. DEPARTMENT OF INTERIOR

1986 *Interagency Grizzly Bear Guidelines*. Interagency Grizzly Bear Team, Cody, WY.

NATIONAL PARK SERVICE, U.S. DEPARTMENT OF INTERIOR

1973 "Archeological Surveys of Proposed Construction Areas In Grand Teton National Park" by G.A. Wright. Report on file, National Park Service, Midwest Archeological Center, Lincoln, NE.

1975 *Final Environmental Statement, Master Plan, Grand Teton National Park, Wyoming.* Denver Service Center, Denver, CO.

1976 *Master Plan, Grand Teton National Park*. Denver Service Center, Denver, CO.

1980 *General Management Plan, John D. Rockefeller, Jr., Memorial Parkway*. Denver Service Center, Denver, CO.

1985 *Statement For Management, Grand Teton National Park*. Denver Service Center, Denver, CO.

1986 *Natural Resources Management Plan and Environmental Assessment, Grand Teton National Park*. Grand Teton National Park, Moose, WY.

1987 "Site Testing at Jackson Lake: A Jackson Lake Archeological Project Interim Report" by Connor, M., F.A. Calabrese, B. Kolb, L.J. Scott, E.C. Svec, and K.L. Pierce. NPS Midwest Archeological Center, Lincoln, NE.

1988 *Draft Development Concept Plan/Environmental Assessment, Colter Bay Village/Jackson Lake Lodge*. Denver Service Center, Denver, CO.

SHEA, R.

1979 "The Ecology of the Trumpeter Swan in Yellowstone National Park and Vicinity." M.S. thesis, University of Montana, Missoula, MT.

PLANNING TEAM

CORE TEAM

Richard Alesch, Planner/Project Manager, Denver Service Center (DSC)
Larry Knowles, Landscape Architect (Ret.), DSC
Bill Conrod, Natural Resource Specialist, DSC
Robert Yearout, Concessions Analyst, DSC
Rick Lasko, Landscape Architect, DSC
Doug DeNio, Sanitary Engineer, DSC
Tom Busch, Architect, DSC
Jack Stark, Superintendent, Grand Teton National Park (GRTE)
Edna Good, Concessions Specialist, GRTE
Wayne Gardner, Regional Office Liaison, Rocky Mountain Regional Office (RMRO)

CONSULTANTS

Robin Gregory, Landscape Architect, GRTE
Doyle Nelson, North District Ranger, GRTE
Jack Wendleton, Civil Engineer, DSC
Clay James, General Manager, Grand Teton Lodge Company
Bill Cottrill, Traffic Engineer, DSC
Marshall Gingery, Assistant Superintendent, GRTE
Roger Haney, Chief of Maintenance, GRTE
Michael G. Schene, Regional Historian, RMRO
Adrienne Anderson, Regional Archeologist, RMRO
Douglas Barnard, Chief Park Ranger, GRTE
Bob Wood, Resource Management Specialist, GRTE
Pete Heyden, Aquatic Biologist, GRTE
Design Workshop, Inc. (3-D computer simulation services)

March 3, 1849

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

Publication services were provided by the graphics and editorial staffs of the Denver Service Center.
NPS D-145A July 1989

☆ U.S. GOVERNMENT PRINTING OFFICE: 1989—673-038/80,037 REGION NO. 8